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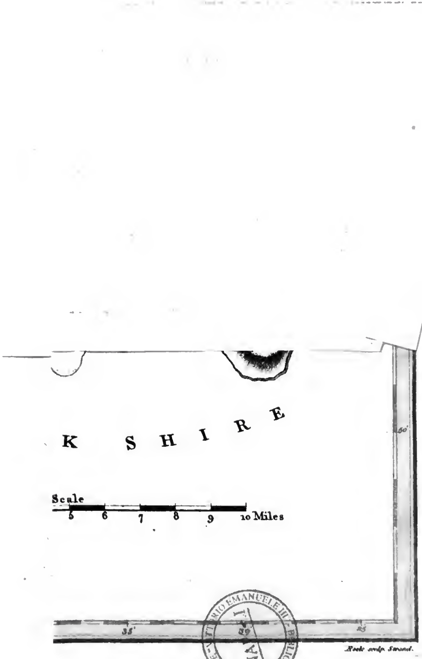

BIBLIOTECA NAZIONALE VITTORIO EMANUELE III NAPOLI

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GENERAL VIEW
OF THE
AGRICULTURE
OF
EAST LOTHIAN;

DRAWN UP FOR THE CONSIDERATION OF
THE BOARD OF AGRICULTURE,
AND INTERNAL IMPROVEMENT.

FROM THE PAPERS OF
THE LATE ROBERT SOMERVILLE, ESQ.
SURGEON IN HADDINGTON.

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> Agricola incurvo terram dimovit aratro;
> Hinc anni labor, hinc patriam, parvosque nepotes
> Sustinet; hinc armenta boum, meritosque juvencos. VIRG.

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AGRICULTURAL SURVEY

OF

EAST LOTHIAN.

CHAPTER I.

SECT. I.—GEOGRAPHICAL STATE AND CIRCUMSTANCES.

HADDINGTON is one of three counties comprehended under the common name of the Lothians, situated on the south-east coast of Scotland, and is much better known by the name of East Lothian than that of Haddingtonshire. In point of soil, cultivation, and produce, it holds the first rank in Scotland; and in some of these respects, particularly the mode of husbandry, it will bear a comparison with the best improved districts in England; notwithstanding the great difference of latitude, being situated between 55° 46′ 10″, and 56° 3′ 10″ of north latitude, three degrees farther north than the county of Norfolk, whose rival it is in many respects.

This district is bounded by the German Ocean on the east, the Frith of Forth on the north, the County of Edinburgh on the west and south-west, and Berwickshire on the south and south-east: the extreme length from west to east is about 24 miles; from south to north the breadth may be about 18, which, were the figure regular, would make a surface of 432 square miles; but, owing to the irregularity of the sides, as laid down in Armstrong's map of the Lothians, it appears to contain only about 297 square miles, or 190,363 English acres, of which about 64 parts are arable, 16 meadows or low lying land, and 20 parts, or one fifth of the whole, consists of hills and wastes, a great part of which is uncultivated.

SECT. II.—DIVISIONS.

THE county of Haddington, in an agricultural view, admits, with propriety, of being divided into four districts, viz. 1st. The coast-land. 2d. The midlands. 3d. The uplands. 4th. The mountainous or Lammermuir district.

1st. *Coast-lands.*—The coast-lands form a skirting of different breadths, commencing at Ravenshaughburn, on the west, and terminating at the eastern extremity of the county. This tract, as will be seen in Sect. 4, contains a great proportion of valuable land, the soil of which, with little variation, is nearly of the same quality throughout; the inclination of the whole is towards the sea, the lands on the north leaning towards the Frith of Forth, those on the east towards the German Ocean.

2d. *Midland District.*—Under the term midlands is comprehended the whole of that ridge, the south side of which leans towards the vale of Tyne, the top being the boundary between the mid and coast-lands, and the lands on both sides of that ridge, situated immediately to the south of the river, a part of which lean towards it with a northerly inclination; the remainder have a south aspect, and incline towards Gefferd, Garwald, &c. This district also commences at the western extremity of the county, but terminates a considerable way inland on the east. It comprehends a great proportion of the arable land of the county, including every variety of soil, a great part of which is extremely valuable.

3d. *Upland District.*—The uplands consist of a tract of various breadths, considerably elevated above the midlands, and running along the bottom of the mountainous district nearly the whole length of the county; a great proportion of the soil is a gravelly loam upon a dry bottom, leaning for the most part towards the north. This district, formerly of little value, owing to its elevation above the level of the sea, has of late years been rendered highly productive, as will be afterwards noticed.

4th. *Mountainous or Lammermuir District.*—This district comprehends a part of that extensive range of hills, which, commencing to the south-west of the county, run along its southern boundary, and terminate in a high bold point called St. Abb's Head on the east shore. The soil of a great part of these mountains is moor, or moss, though a good deal of it, even in the highest parts, is of a better quality, and in the glens and flat tracts between the hills, a good deal of valuable land is met with, which is kept under a regular rotation of crops.

SECT. III.—CLIMATE.

There is perhaps no district of equal extent in the United Kingdoms in which the climate is so various as in East Lothian; from the sea coast to the Lammermuir hills, a distance of only 13 or 14 miles, all the different shades of climate, generally met with in the north of Europe, are experienced.

This variety is owing evidently to the elevation of the land, in different parts, above the level of the sea; from the south shore, of the Frith of Forth, the country rises towards the mountains, not in a gradual slope, but in ridges running nearly parallel to each other in a direction from west to east. Each of these ridges has a climate in every respect suited to its altitude. Those nearest the hills are colder, and the seasons later, than such as are less elevated and nearer the sea, while the vales, or intermediate spaces, enjoy, with very little variation, the same climate and seasons as the open flat parts of the county.

But, though the actual degrees of heat and cold, as measured by the thermometer, in the different parts of the county, will be found to correspond, pretty nearly, with this description, there are other circumstances to be taken into the account, which have a considerable influence upon the climate and produce of the earth, namely, the prevailing winds, and the figure and situation of the most elevated lands. The last may be said to regulate, in a great measure, both the violence of these winds, and the quantity of rain that falls throughout the year.

From December till May the winds are variable, chiefly from east to north, and most of the rain and snow that fall during that space are from these quarters, with occasional storms from the north-west. Towards the beginning of May the sea breeze sets in from the east, and, in ordinary seasons, continues with very little interruption till the end of July or beginning of August; during which, contrary to what happens in the remaining part of the year, these winds are generally attended with dry weather, a circumstance of considerable importance to the agriculture of the county, especially the eastern part of it. From the beginning of August till the end of Autumn, the winds vary from west to south and south-east, in which last quarter they are for the most part attended with rain or foggy weather, and often occasion great perplexity and loss to the farmers during harvest. The high gales that happen during August and September are generally from the south-west or north-west, and for the most part attended with dry weather. There are, however, exceptions from this, and the harvest operations have been sometimes much impeded, and great loss sustained, by rains brought with these westerly winds.

It has been observed that the land rises from the sea on the north, not in a regular or gradual slope, but in ridges, most of which (with the exception of that known by the name of Garleton Hills) commence near the western extremity of the county, and are continued eastward for many miles. The northernmost ridge, forming a part of the sea coast, commences on the east side of Aberlady, terminates at North Berwick Law, and comprehends the whole of the lands to the north of the Vale of Peffer. The intermediate ridges between that and the hills, as has already been noticed, with the exception of that which forms Drumbender Law, runs farther east than any of them.

By means of these terminations, a valuable and extensive plain is formed on the east part of the county, the extensive boundary of which is the Lammermuir hills on the south, and North Berwick Law on the north. This figure of the county has a considerable effect, not only upon the winds and the quantity of rain that falls in particular parts, but also upon the produce of the earth. It has been observed that the prevailing winds, during the summer months, are generally from

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the east, which, at that season, are usually productive of dry weather; any rain that falls, during that time, being from the west, owing to the circumstance of a part of the clouds coming from that quarter being attracted by the high lands at the western extremity of the county, and divided in such a manner as to send them often two different directions, one towards the Lammermuir hills, the other taking the direction of the Frith of Forth. The remaining clouds, which escape the high grounds to the west, continue their course eastward till they meet with the Garleton hills, Kilduff and Drumbender Law, where, owing partly to the attraction of these hills, and partly to the sea breeze from the east, which they then encounter, they are also sent off in a triangular direction; a part goes towards the Frith, and the remainder to the hills, along which they are carried till they reach Dunglass, where they empty themselves into the sea.

The figure of the east coast of Scotland contributes greatly to the uniformity of the sea breeze in the county of East Lothian. The high land of St. Abb's Head on the south, and the Fife hills on the north, form a bay of great extent, into which the wind enters as into the mouth of a large funnel. This current of air, in its progress westward, is gradually confined by the contraction of the country; and, when it reaches the coast of East Lothian, is divided into two streams, by North Berwick Law, and the high land to the westward of it, one of which takes the direction of the Frith of Forth, the other blows over that extensive plain which forms the east part of the county.

As the current that blows over this plain proceeds to the westward, being gradually confined within a narrower space, its velocity is so much increased, that when it encounters the clouds from the west, the strength it has acquired is sufficient to alter their direction, and prevent their further progress in a direct line eastward. Owing to this cause, very little rain falls in the east part of the county, during the summer months; a circumstance that has often tantalized the farmers in dry seasons, when they had long expected rain with much anxiety, and been flattered with the near prospect of it; a disappointment which, though, in particular years, may be attended with loss, by preventing the turnips from vegetating, in the early part of the season, or the grain from filling, towards the latter end of it, is, upon the whole, to be considered as an advantage. The fact is, that the want of rain, to a certain degree, on that part of the country, is productive of benefits not very generally understood, as the superior quality of the grain raised there, is owing to the same cause as that of the produce of the southern counties of England, namely, its ripening early, and enjoying so much heat and sun-light during the various stages of its growth.

The beneficial effects of heat and sun-light, on vegetation, are now well understood; and it is an established fact that the colour and flavour, as well as the nutritive qualities of all the productions of the earth, depend upon the proportion of light and heat they enjoy during their growth and ripening.

It may be concluded, from the foregoing observations, that more rain falls, in the course of the year, upon the hilly district, the higher part of the midlands, and upon the coast, than in the east part of the county. Perhaps a pretty accurate estimate may be formed, of the proportion in which rain falls, by marking the period at which the harvest commences in each district. In the east part of the county it is, for the most part, ten days earlier than upon the coast-lands on the north, and these again are, from three weeks to a month, earlier than the hills; the intermediate grounds are later in proportion to their elevation, but soil and other circumstances form several exceptions to this rule. Indeed, in particular years, the distinction is almost destroyed, as when the winter is mild, the spring early, and the summer moderately dry and warm, the harvest in all the different districts, with the exception of the East part of the county, commences nearly at the same time; but when the winter is severe, the spring backward, and the summer cold and ungenial, the crops upon the whole of the coastland, and part of the midland districts are cut down and housed, before much harvest work is done either in the uplands or Lammermuir.

The snow, in the lower parts of the county, seldom continues long upon the ground; upon the greatest part of the coast-land it melts almost as soon as it falls—in the midland district it often remains upon the ground for a considerable time—in the uplands it remains much longer—and the Lammermuir district, in particular seasons, is sometimes covered entirely for three months. Indeed, there are instances of its continuing upon the north side of these hills till the beginning of July; this last is, however, a rare occurrence, and only happens when the snow has been much blown or drifted during the winter, and the following spring happens to be cold and late. In the year 1800 that district was longer covered than perhaps has been known; the first snow began to fall towards the latter end of November; from that time till the beginning of April, the farmers were under the necessity of feeding their flocks, more or less, with hay or oats, and several of these, after exhausting their whole fodder, were, as the only means of preserving their stock from perishing, obliged to drive them to the coast towards the end of March, where they fed upon the link ground for some time. In describing the

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climate of a county, such as East Lothian, which ranks among the first in Scotland, and rivals several of the English counties, the above account will scarcely appear credible to any but those who are well acquainted with the fact above stated. To those who are acquainted with Italy, the matter will require no explanation; the snows and rigours met with even in the lower regions of the Alps, prove what effect the elevation of the land, above the level of the sea, has even in the lowest latitudes. This observation is not confined to Italy; Africa affords another proof; and, in the new world, the ridge of the Andes, under the equator, is covered with perpetual snow.

The severity above-mentioned, however, though partially felt, deserves not to be noticed when compared with the advantages derived from the variety of climate in East Lothian; which, owing to the nature of the soil in different parts, renders it, even in the worst of seasons, capable of producing every variety of grain and vegetables known in the island, in great perfection; these circumstances, added to the skill and enterprise of the farmers, give to East Lothian a great part of the advantage it enjoys over other parts of Scotland; and the great quantity and value of its produce, as well as the perfection of its husbandry, may, with truth, be ascribed principally to these causes.

SECT. IV.—SOIL AND SURFACE.

EVERY variety of soil, known in Britain, is met with in East Lothian, a great proportion of which is well adapted to the growth of the different kinds of grain and vegetables; the remainder, consisting chiefly of mountains and wastes, admits of being profitably employed in pasture, and in woods and plantations. A map is prefixed, which will convey some idea of the different varieties. It is not to be presumed that the sketch is perfectly correct, as the soil varies so much upon every estate and farm, and, in many instances, even in the same field; those who have paid attention to the subject, will readily perceive the difficulty of describing, with any thing like tolerable accuracy, the variety in different parts of so extensive a district. It is hoped, however, that the present will serve as a general outline, which, in fact, is all that was intended in giving it. The proportion of each soil, as contained in the following distribution, will be found to come pretty near the truth.

DISTRIBUTION OF SOIL IN EAST LOTHIAN.

Acres.	
8,000	of dry loam and gravelly soil upon the coast.
12,000	of a similar quality in the midlands.
3,000	ditto in the uplands.
7,000	of a soft inactive soil chiefly upon a sandy bottom.
12,500	rich loam.
17,500	inferior ditto.
10,000	rich clay.
40,000	thin clay, chiefly upon a wet bottom.
10,000	moorish soil scattered over the lower parts of the county.
7,000	of links upon the coast, mostly rabbit warrens or pasture.
8,000	in woods, hedge rows, &c. &c.
50,000	in hills, moors, and wastes.
5,363	in rivers, highway, gardens, buildings, &c.
Total 190,363	

SURFACE.

IN describing the soil and climate of East Lothian, enough has been said to convey a tolerable idea of the surface, which, with the exception of the coast lands, is very uneven, rising in some places, even upon the coast, to a considerable height, and in others very far inland sinking nearly to the level of the sea.

The county, viewed from the most elevated part of the Lammermuir district, presents to the eye at once the richest and most beautiful scenery that can be imagined; from that point the whole county is seen at once, and the surface, in place of the inequalities it is known to possess, presents the appearance of an extensive plain, covered with well cultivated fields, substantially enclosed, sheltered and ornamented with detached woods, clumps and hedge rows of trees, together with the seats, parks, and pleasure grounds of the different proprietors: many of which rise with much beauty and grandeur from the midst of the plantations with which they are surrounded, conveying to the mind a suitable idea of the respectability, wealth, and taste of the owners. Towards the east, the eye, after wandering over one of the most fertile prospects that can be imagined, loses it in the German Ocean, while on the north the prospect bounded by the coast of Fife, separated from East Lothian by the Frith of Forth; the high lands in Mid Lothian, together with the Tweedale hills, terminate the prospect on the west.

From the top of Garleton hills, in the centre of the county, the view, though somewhat altered, is equally rich and beautiful, being less elevated than the Lammermuir hills, and the eye brought nearer to most of the objects, the inequalities of the surface are much more discernible, and as these inequalities are not so great as to prevent the observer from seeing into the hollows between the different ridges of which the county consists, a very correct idea can be formed of the extent, beauty, and fertility of the whole.

The south view presents a high idea of shelter and grandeur. The Lammermuir hills, which run from West to East the whole length of the county, appear to rise abruptly from their base, not in a straight line, but in the form of a vast amphitheatre, seemingly destined by nature to shelter and protect the lands which they appear to surround. The brown uncultivated appearance of these hills, contrasted with the adjoining scenery, affords a comparative idea that gives a high degree of colouring to the picture, and greatly increases the beauty of the cultivated country; on the east and north, indeed all round to the west extremity of the county, the land has the appearance of an uniform plain; and, in good weather, the eye is gratified with seeing all the operations connected with an improved husbandry carrying on for many miles in all directions; the sea-ports of Dunbar, North Berwick, Prestonpans, and Cockenzie are all seen from this point, together with the different islands near the coast, the principal of which are—the *Bass*, the *May*, *Fidra*, and several others; all of which rise bold and rocky from the sea, and by their appearance, connected with that of the coast immediately opposite to them, carry the mind back to the period when they were joined to the continent, and leave a strong impression of the awful nature of the convulsion that occasioned their separation.

It is scarcely possible to conceive a richer or more pleasing picture than the county exhibits, viewed from this point, about an hour before sunset, in a fine harvest evening, the fields all round being covered with rich crops, the greatest part in sheaves, convey an idea of the most unbounded plenty; while the variegated appearance, so common at that season, upon the foliage of the trees and hedges, a part of which are then in a state of decay, joined to the lengthened shadow which distinctly mark every enclosure and subdivision, and, indeed, almost every solitary tree exhibits every beauty that can be expected from the united effects of natural advantages, highly improved by human industry.

The smoke rising from the great towns and villages, and from every cottage, is distinctly seen; and, by marking the abodes of every ploughman and cottager, gives the mind a warm interest in the evening scenes of that part of the community, who are destined by Providence to constant labour in raising the necessaries of life for the whole, and who in the evenings find an equivalent for the toils of the day, in the undisturbed possession of domestic enjoyment, arising from the innocent prattle of their children, and the mutual exchange of their attentions and good offices, without which even the highest situations would be insupportable.

SECT. V.—MINERALS.

THE western part of this county is full of coal, which was formerly sold at the pit at about 4*d*, now generally at 9*d* per load of 2 cwt.; and nature has kindly distributed considerable beds of limestone in different parts of the county. It may be difficult, perhaps, to find any point which exceeds six miles from the lime rock. With the exception of the coal and lime just mentioned, the greater part of the county lies on a bed of red granite or iron stone of considerable gravity.

SECT. VI.—WATER.

EAST Lothian, except upon the summits of some of the ridges, where the soil is light and situated upon an open porous bottom, is every where well watered; though, owing to the irregularity of the surface, the waters are prevented from uniting in such a way as to form large rivers; the only one that deserves that appellation is the Tyne, which rises in Mid Lothian, several miles to the westward of this county, which it enters beyond Ormiston on the west, and, running in a direction nearly due east through the centre of the midland district, falls into the sea over a flat sandy beach eyond Tyningham, the residence of the Earl of Haddington. Where the Tyne enters the county its size is very inconsiderable; progressively, however, as it advances towards the east, it receives the waters from the whole of the springs and rivulets that descend from the ridges on both sides of the vale through which it runs, by which it is so much augmented, that by the time it reaches the sea, it is no inconsiderable river. At its outlet it affords pretty safe anchorage, in ordinary tides, for vessels of from forty to fifty tons burthen, and in spring tides will admit those of one hundred tons; but the access is difficult, owing to a bar, consisting partly of rocks, the removal of which would be attended with great advantage, and render it an asylum for many of the vessels that are wrecked on the east coast during winter; this improvement, in the opinion of those who have the best opportunity of knowing the coast, would neither be difficult nor expensive.

The other waters take the direction that might naturally be expected from the figure of the county; the springs and rivulets from the different ridges, uniting in the hollows between them, form several considerable waters, the principal of which on the south of Tyne, are Coalstone, Whittingham or Biel, Whitewater, or Whittater, as it is provincially named, Bothwell, and Fastna, &c. The only water of any importance to the north of Tyne is Peffer, which rises in the middle of the vale of that name by Congleton, and taking two opposite directions, one parts falls into Aberlady bay on the west, and the other empties itself on the east shore over a flat known by the name of Peffer Sands. Of this rivulet, as well as the other waters in the county, more particular notice need not be taken, as they present nothing remarkable. It may only be observed in general, that much more benefit might be derived from the different streams in this county than is at present the case, and a good deal of the mischief they do prevented with little trouble or expense.

CHAPTER II.

STATE OF PROPERTY.

ESTATES AND THEIR MANAGEMENT.

THE valued rent of the county is stated, in the records of the court of exchequer, at 168,878*l.* 5*s.* 10*d.* Scotch; and it is believed that the real rent now exceeds that sum in sterling money. This property, exclusive of what belonged to corporate bodies, in 1800, was divided among 190 proprietors, 10 of whom were noblemen. The following distribution into classes will convey a tolerably exact idea of the manner in which property was then held.

CLASS I.

Estates of upwards of 2000*l.* Scotch valuation.

No.	£.	s.	d.
1	13,475	12	1
2	10,596	9	3
3	8,938	2	6
4	7,713	8	2
5	7,033	12	11
6	6,669	15	0
7	6,552	16	2
8	6,298	15	10
9	5,166	5	5
10	4,307	0	3
11	3,959	4	5
12	3,883	1	4
13	3,879	0	0
14	3,572	5	10
15	3,460	10	0
16	3,423	19	0
17	3,298	11	3
18	3,079	7	2
19	2,791	9	0
20	2,786	7	0
21	2,707	6	8
22	2,661	19	5
23	2,384	9	0
24	2,383	1	8
25	2,310	12	9
26	2,056	18	5
Number of estates			
	£.125,566	13	10

Hence it appears that these 26 estates of upwards of 2000*l.* Scotch valued rent, the highest of which is 13,475*l.* 12*s.* 1*d.* the lowest 2,056*l.* 18*s.* 5*d.* making in all the sum of 125,560*l.* 13*s.* 10*d.*

CLASS II.

Estates from 1000*l.* to 2000*l.* Scotch valuation.

Number of estates.

No.	£.	s.	d.
1	1,978	7	8
2	1,819	9	6
3	1,504	19	2
4	1,486	17	6
5	1,469	0	2
6	1,461	14	1
7	1,354	9	2
8	1,310	0	10
9	1,261	10	2
10	1,259	18	2
11	1,249	3	4
12	1,066	13	4
	£. 17,222	3	1

Hence the number of estates above 1000*l.* Scotch is 12, the highest of which is valued at 1,978*l.* 7*s.* 8*d.* and the lowest at 1,066*l.* making in all the sum of 17,222*l.* 3*s.* 1*d.*

CLASS III.

Estates of from 1000*l.* to 400*l.* Scotch of valued rent.

No.	£.	s.	d.
1	976	6	8
2	919	13	7
3	846	7	8
4	796	4	0
5	750	15	0
6	722	0	0
7	710	3	0
8	672	14	8
9	637	12	8
10	600	0	0
11	597	12	8
12	558	16	1
13	555	14	6
14	531	2	7
15	530	14	2
16	528	2	1
17	528	2	1
18	516	4	11
19	501	4	8
20	468	0	0
21	462	18	0
22	462	13	4
23	445	5	6
24	409	13	6
25	408	1	4
26	406	2	0
27	405	0	10
28	403	4	0
29	401	13	4
	£.16,752	4	.9

Number of estates.

Hence 29 estates, the highest of which is 976*l.* 6*s.* 8 *d.* and the lowest 401*l.* 13*s.* 4*d.* making in all a valued rent of 16,752*l.* 4*s.* 9*d.* Scotch.

CLASS IV.

Estates of from 400*l.* to 200*l.* Scotch valuation.

	No.	£.	*s.*	*d.*
	1	312	14	5
	2	308	2	4
	3	252	6	8
	4	252	4	10
	5	232	13	2
	6	221	6	9
	7	218	6	8
	8	207	6	6
	9	205	10	4
Number of Estates.	10	201	6	4
		£.2411	18	0

Hence 10 estates, the highest of which is valued at 313*l.* 14*s.* 5*d.* and the lowest at 201*l.* 6*s.* 4*d*; making in all the sum of 2411*l.* 18*s.* of valuation.

CLASS V.

Estates of from 200*l.* to 100*l.* Scotch valuation.

Number of Estates.

No.	£.	s.	d.
1	199	1	8
2	196	10	8
3	186	0	0
4	182	10	0
5	178	6	4
6	176	12	4
7	163	0	0
8	161	10	0
9	154	0	0
10	146	7	2
11	145	11	0
12	141	9	9
13	141	9	6
14	138	13	4
15	131	18	5
16	129	9	8
17	111	13	4
18	110	10	0
19	104	0	0
20	100	0	0
—	£.2822	0	10

Hence 20 estates, the highest of which is 199*l.* 1*s.* 8*d.* valued rent, and the lowest 100*l.* making in all the sum of 2822*l.* 0*s.* 10*d.*

CLASS VI.

The number of proprietors who possess estates under 100*l.* of valued rent amounts to 94, chiefly in the parishes of Haddington, Dunbar, North Berwick, Dalton, Prestonpans, and Tranent; the sum total of their valuation amounts to 2567*l.* 2*s.* 9*d.*

CLASS VII.

Hospital, Church, and Burgh Lands.

		£.	s.	d.
1	Shaw's Hospital at Preston* -	831	9	2
2	Watson's Hospital at Edinburgh	474	5	1
3	Chapel Royal † Holyrood House	200	0	0
4	Burgh of Dunbar - - - - -	30	8	4
	Making	1536	2	7

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* The first of these, Shaw's hospital, being a late institution, and situated within the county, deserves particular notice. The founder, James Shaw, Esq. of Preston, who died in 1784, by deed of mortification, dated the 4th December, 1781, bequeathed the lands of Preston, in East Lothian, and an estate in the island of Montserrat, in the West Indies, together with his other property, real and personal, to trustees, for the special purpose, after payment of certain legacies and annuities, of founding and endowing an hospital for the maintenance and education of poor boys, and for apprenticing and settling them in the world in a frugal and sober manner.

By the regulations none are admitted under the age of four, nor permitted to remain longer than till they arrive at the age of fourteen. The number of boys is at present twenty-five, who are accommodated in the house of Preston; the managers are five of Mr. Shaw's friends during their lives; the proprietors of

RECAPITULATION.

The division of property, agreeable to the statement given, is as follows:

Class.		No. of Proprietors.		Valued rent.		
				£.	s.	d.
1	- -	26	-	125,566	13	10
2	- -	12	-	17,222	3	1
3	- -	29	-	16,752	4	9
4	- -	10	-	2,411	18	0
5	- -	19	-	2,822	0	10
6	- -	94	-	2,567	2	9
7	- -	4	-	1,536	2	7
Making in all of Proprietors, including Corporate Bodies		194	and	168,878	5	10

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the adjoining estates of Preston, Grange, and Northfield; the ministers of St. Cuthbert's, Prestonpans, and Tranent; the Sheriff Depute of Edinburgh and Haddington, the Lord Provost, Eldest Baillie, Dean of Guild, and Treasurer of the city of Edinburgh, the Principal of the University, together with the Preses and Treasurer of the Merchants' Maiden Hospital, George Watson's Hospital, and the Orphan Hospital of Edinburgh, all for the time being.

† The lands which formerly belonged to the Chapel Royal were, in 1763, granted in perpetual feu to the family of Gilmerton.

Extract Roll of the Freeholders of the County of HADDINGTON, *as made up by the Michaelmas Head-court, in the year* 1804.

Sir William Pulteney, Baronet, of Westerhall, for the lands of Lockhill.

George Buchan Hepburn of Smeaton, one of the Barons of the Court of Exchequer.

John Buchan, Writer to the Signet, for Harper-dean.

Sir Andrew Lawderdick, Baronet, of Fountain-hall.

James Wilkie, Esq. of Gilchriston.

James Sym of Northfield.

John Hay of Hopes.

General John Fletcher Campbell of Salton, for that part of the estate of Salton called Melton.

Robert Hunter of Hunston.

Robert Baird of Newbyth.

William Hamilton Nisbet of Dirlton.

William Douglass of Garvald.

Thomas Brown of Johnstonburn.

George Buchan of Kello, for Westerfallside.

John Hamilton of Pencaitland.

Sir James Pulteney, Baronet, of Hillhead, for West Fortune and Windymains.

John Hepburn Belches of Invermay, for Blackcastle.

John Sandelands, portioner of Eastbarns.

Sir James Suttie, Baronet, of Balgone.

James Kay, Writer in Edinburgh, for Whittingham-mains and Northcrofts.

John Glassell, for first lot of Longneddy.

William Caddell of Banton, for part of lot third of Tranent.

John Caddell of Cockenzie, for lot second and part of lot third of Tranent.

Cornelius Elliot, Writer to the Signet, for Myles and Birsely.
James Hepburn of Humbie.
David Anderson of St. Germains.
Robert Hay of Dummelzier, for Westfield.
James Hay of Nunraw.
James Walker, Writer to the Signet, for Brodie's-mains, Myreside, Eastfortune, and others.
Thomas Smith, Writer in Edinburgh, for Westmains, &c.
George Campbell, Wine Merchant in Edinburgh, for part of Saltcoats.
Sir James Hall, Baronet, of Dunglass.
Robert Dundas of Arniston, Lord Chief Baron of the Court of Exchequer, for Craig, &c.
Andrew Gray of Southfield.
William Whitelaw Wemyss of Whitelaw.
James Hay Younger of Hopes, for Mayshiel and Crickness.
Andrew M'Dowall of Logan, for Bankton.
Captain James Dalrymple, late of the — regiment of foot, for Mainshill, &c.
John Anderson of Windygoul, for part of Eastcraig, &c.
Colonel Edward Hay Mackenzie of Newhall.
The Honorable Colonel Charles Hope of Waughton.
David Finlay of Drummore.
John Dudgeon, now of Eastcraig, for the east and west farms of Wester Pencaitland.
Francis Buchan Sydserff of Ruchlaw, in right of Mrs. Martha Buchan Sydserff, his wife.
George Bogue of Woodhall, for Foulstruther, Broomrigg, and Woodhall.
Robert Vetch of Capenflatt.
Sir John Callender of Westerton, for Elphingstone.

John Buchan Hepburn, younger, of Smeaton, Advocate, for Ugston.

William Caddell, jun. of Cockenzie, for Muirshott and other lands of Tranent.

Sir Hew Dalrymple Hamilton, Baronet, of North Berwick, for the south side of the island of Bass.

Robert Hay of Lawfield, for the lands of Spott and others.

William Hay Newton of Newton.

The Honourable Francis Charteris, eldest son of the Right Honourable Francis Charteris Lord Elcho, for Beanston.

Robert Hunter, Esq. younger, of Thurston, for the wester half of the lands of Riggenhead.

David Cathcart of Greenfield, Advocate, for the easter half of the lands of Riggenhead.

Charles Hay, Esq. Merchant in Dunbar, for part of Blance.

Robert Cathcart, Writer to the Signet, for part of the first lot of Tranent and Cockenzie.

Alexander Houston, Esq. of Clerkington, Governor of Grenada.

Alezander Mackenzie, Writer to the Signet, as life-renter for certain parts of the lands and estates of Aberlady.

Colin Mackenzie, one of the principal clerks of Session, as life-renter for certain other parts of the lands and estates of Aberlady.

James Paton, Esq. late of the Honourable East India Company's civil service at Bombay, for certain parts of the first lot of the lands and baronry of Tranent and Cockenzie.

John Dunlop of Moreham, for the lands of Morehammains and two fields called Ploughfields.

Sir Alexander Kinloch of Gilmerton, Baronet, for the lands of Gilmerton.

The Honourable Major Patrick Stuart, of the — regiment of foot Guards, as Fiar of the lands and estate of Eaglescairnie.

Robert Stewart, Esq. of Alderston.

Sir George Warrender, Baronet, of Lockend, for Broompark and Hallhill.

James Yule of Gibslees, as life-renter of the north farm and certain other parts and portions of the lands of wester Pencaitland; also, of the lands of easter or little Fallside.

James Home Rigg, Esq. of Downfield and Morton, for easter and wester Gammelshiels, &c.

Robert Watson, Writer in Edinburgh, for the lands which formerly belonged to Thomas Haddoway's heirs, and also for sundry parcels of land of Blackcastle.

The Honorable Robert Dundas of Melville, for Merryhatton and Westgarleton. And

George Rennie, Esq. of Fantassie.

Compd. Certified to be a true copy by
ALEX. FRASER, Sh. Clerk.

The number of freeholders at present upon the roll, as appears from the preceding list, amounts to seventy-one; some years ago the number was seventy-eight; of these, forty-six were real proprietors possessing land equal to the value of a freehold qualification, six were heirs apparent of such proprietors, and the remaining twenty-six were enrolled on superiorities. Since that time several alterations have taken place, partly by the death of real freeholders, and partly by the alienation of property. The most considerable changes, in property, have taken place in consequence of the acquisitions made by the Earl of Wemyss, of the lands of Seton, Setonhill, and the baronry of Aberlady, which renders him by much the greatest proprietor in the county. These lands were formerly the property of Alex. Mackenzie, Esq. Writer to the Signet, James Craig, Esq. of Pelmuir, and the Earl of Portmore. The only alienation of consequence, besides these, has been made by the Earl of Aberdeen, whose lands of Fantassie, Linton, and Fortune, have been acquired by George Rennie, Esq. and James Walker, Esq. Writer to the Signet. The heirs of the late Rev. Dr. George Barclay of Redcoal have also alienated that property, which belonged to him; it has been acquired by William and James Ainslie, merchants in Leith.

It would appear, that the estates in this county, as indeed in almost every other district in Scotland, had, at one period of our history, been much larger, and the property less diffused than at present. The causes of that dispersion of property will be found in the history of Scotland for the century immediately preceding the union of the two kingdoms, since which, a still greater division of estates has taken place, owing to a great part of the lands having passed into the hands of merchants, or monied men, who, acting upon the principle, certainly not uncommon in their line of life, of sharing their property equally amongst their children, in place of giving it to one branch of the family to the prejudice of the rest, would occasion the division of many of the estates so acquired; and if the principle is traced still lower in the scale, many subdivisions would follow. Of late years, however, the estates in East Lothian have been upon the increase, the property of many small holders being absorbed in many of the great estates; a circumstance which does not appear to have been attended with any bad effects, either to the population or internal industry of the county. The only considerable dispersion of property, within the last century, consists of the baronries of Seton, Winton, Tranent, and Longneddy, forfeited by the attainder of the Earl of Winton in the year 1716; the whole of which were acquired and held by the York Buildings Company, till the derangement of their affairs, and final bankruptcy. They were sold by the creditors of the Company in 1778; the valuation of the whole was 12,140*l.* 5*s.* 10*d.* Scotch; the free rent of the whole was 3968*l.* 11*s.* 5½*d.* and of the coal and salt works, 300*l.* making in all 4268*l.* 11*s.* 5½*d.* sterling. The lands were valued at twenty-five, the coal and salt works at three year's purchase, amounting to 100,114*l.* 6*s.* 11½*d.*; they were divided into eleven lots, and when exposed to sale brought 118,500*l.* A process of reduction was afterwards brought by the Company, against the sale of that part bought by Alex. Mackenzie, Esq. common agent in the sale, which, after a long and expensive litigation, was ultimately declared null and void by the House of Peers; not upon the principle of fraud or dishonesty, on the part of Mr. Mackenzie, but upon the plea of incompetency, owing to his situation as common agent. The history of that property affords a striking proof of the advanced value of land since the year 1779. The extent in Scotch acres, is 626; the valuation, 2310*l.* 12*s.* 9*d.* Scotch; and the free rent, at the time of sale, was 738*l.* 17*s.* 4½*d.* sterling: The purchase money was 18,471*l.* 13*s.* 6¼*d.* Soon after the purchase, the lands, after the expenditure of little more than 2000*l.* upon inclosing and other improvements, were let at 1300*l.* per annum, exclusive of ground kept in the possession of the proprietor; and, upon the reduction of the sale by the House of Peers in 1798, the property was purchased, by the Earl of Wemyss, at the price of 57,000*l.*

thrice the sum paid by Mr. Mackenzie in 1779. The surface is now let to substantial tenants, upon leases of 19 years, at a rent which pays the Earl five per cent. interest, independent of the advantages he may derive from the working of coal and other minerals, the shore dues, and the erection of salt pans, for which there are many eligible situations all along the coast.

Of the ancient families in East Lothian a part still remains, some of whom have possessed estates in the county for more than two centuries; the principal of which are, Kerr Duke of Roxburgh; Hay Marquis of Tweedale; Murray Lord Elibank; the Browns of Coalstone; and the Hepburns of Humbie and Smeaton, descendants of the family of Bothwell, whose chief makes so remarkable a figure in Scottish history.

The families who have acquired property in East Lothian, during the last two centuries, are,

1 Charteris Earl of Wemyss,
2 Hamilton Earl of Haddington,
3 Hope Earl of Hopeton,
4 Stewart Lord Blantyre,
5 Sinclair of Stevenston,
6 Kinloch of Gilmerton,
7 Hall of Dunglass,
8 Lawder Dick of Fountainhall,
9 Suttie of Balgone,
Knights of Nova Scotia.
10 Nisbet of Dirlton,
11 Hamilton of Pencaitland,
12 Hay of Newhall,
13 Newton Hay of Newton,
14 Hay of Dummelzier,
15 Hay of Belton,
16 Hay of Lawfield,
17 Hay of Nunwaer,
All branches of the house of Tweedale.
18 Fletcher of Salton,

19 Baird of Newbyth,
20 Dalrymple of Hailes,
21 Sydserff of Ruchlaw.

The proportion of land cultivated by proprietors is inconsiderable, a circumstance which may be accounted for, partly by the non-residence of some of them, and chiefly by there being no necessity for gentlemen to execute improvements at their own expense, in order to get them effected. The tenantry have, for a long time, had sufficient capital, and been disposed to make improvements, and they can generally accomplish them at less expense. In some districts, where the tenantry are not so far advanced in agricultural knowledge, and possess less capital, proprietors must either execute great improvements at their own expense, or leave them undone. Fortunately, however, in this county there has been long an intelligent and active tenantry, which has rendered the interference of landlords, for this purpose, in a great measure, less necessary than in other places.

Several of the principal estates are managed by factors, residing in Edinburgh, or the principal towns in the county who transact business with the tenants. In a number of cases, however, the proprietors manage their own affairs; a plan which tends to promote the interest of both parties, and frequently to prevent much litigation.

SECTION II.—TENURES.

Nearly the whole of the principal estates hold of the Crown; some of the lesser proprietors, however, especially such as are below 100*l.* Scotch of valuation, hold of subjects superior, for the paying of a trifling quitrent. A small part is held of the burghs of Haddington, Dunbar, &c.

CHAPTER III.

HOUSES OF PROPRIETORS.

THERE is perhaps no county in Scotland of equal extent, and at the same distance from the capital, that can boast of a greater number of gentlemen's seats. All of them are elegant, and delightfully situated; some of them are built in a style of princely magnificence, particularly the houses of Amisfield and Gosford, the property of the Earl of Wemyss; Yesterhouse, the property of the Marquis of Tweedale; &c. A mind properly constituted must contemplate with pleasure these respectable edifices, the owners of which, from education, local attachment, and other circumstances, may be expected to take a warm interest in the welfare of the county, especially of that meritorious class whose capital and abilities are employed in the cultivation of the soil.

A part of the nobility reside almost constantly in the county, a part only occasionally; of the former, the Earls of Wemyss and Haddington are the principal; the latter consist of the Duke of Roxburgh, the Earls of Hopeton and Lauderdale, the Countess Dowager of Hyndford, Lords Elibank, Blantyre, and Sinclair.

Of the seats of the ancient nobility and respectable proprietors, formerly termed castles, or places of strength, there are many; some of which are in a tolerably perfect state, others, though much decayed, are venerable even in their ruins. Of the latter, the principal are, the castles of Dunbar and Hailes, once the property of the Earl of Bothwell; the fortress of Tantallan, the residence and property of the Douglasses; the castle of Redhouse, the property of the Hamiltons: Dirlton castle, the property of Wm. Nisbet, Esq; and Luffness, the property of Colonel Charles Hope. Seton House, which presented one of the most regular and pleasing plans of any ancient fabric in the county, was some years since pulled down by Mr. Mackenzie, the late proprietor, and rebuilt, in a style of architecture peculiar to itself, and which admits of no accurate description.

SECTION II.—FARM-HOUSES, OFFICES, AND REPAIRS.

The modern farm-houses mark the progress of agricultural improvement, and the amelioration in the condition of the farmers, more than almost any single circumstance. Formerly, the greater part of the farm-houses were very mean, and, except in having more apartments, differed very little, in point of comfort, from the cottages of their servants; of late, however, a better taste has crept in, and the houses which have been built within the last twenty years, are, for the most part, in a very good style, and contain much of that accommodation so inseparably connected with the comfort of a farmer's family. They are generally of two stories, containing upon the ground floor, parlour, nursery, kitchen, larder, milk-house, laundry, &c.; and, in the upper floor, four rooms, besides closets, garret rooms, &c. The offices are, in some instances, very complete, and placed in such a situation as to form a square, the area, or open space of which, is used, in some cases, only as a cattle yard, but more commonly it is employed for the double purpose of cattle yard and dunghill. The dwelling-house, for the most part, is placed in the middle of one side of the square, generally on the south side, with an entry from that quarter, and a back door into the square, for the convenience of the servants; in a few instances, the dwelling-house entirely is detached from the offices, which, as far as comfort and cleanliness are concerned, is certainly an advantage. The plan is not however generally relished, some farmers wishing to have their cattle yard and barn door immediately under the parlour window; indeed, in a recent instance, one of these new-built houses, merely on account of its being detached from the offices, was pulled down by the tenant, and built upon the verge of the dunghill, an example that has no great chance of being followed by his brethren, as a taste for neatness and elegance is now very generally diffused amongst the tenantry of this district.

There are still, however, many farm-houses extremely incommodious, and, together with their offices, quite in the style of the last century; these are, for the most part, upon farms with very long leases, where many reasons concur to prevent both the proprietor and occupier from building them upon a more commodious plan. Progressively, however, as these leases expire, an improvement takes place, in both the farm-house and offices; it being now an express stipulation, in every lease, where the farmer means to reside upon the premises, that a comfortable house and set of offices shall be built.

Upon different estates these buildings are erected upon different terms; where a tenant enters to the whole buildings in a perfect state, it is understood that they shall be supported, and left in good repair at the end of the lease; but, in cases where extraordinary repairs are required, or new buildings erected, the landlord usually furnishes the timber for the wood work.

It is common at the end of every lease to have the buildings examined by tradesmen mutually chosen, one by the landlord, the other by the outgoing tenant, who is, in general, obliged either to make the necessary repairs for his successor, or pay an equivalent in money. The justice of this system is, however, questioned by some, and apparently not without cause. Where a farm is let at a slump rent, without any specification as to the number of acres, it is fair and proper to stipulate that both houses and fences shall be left in a sufficient state at the end of the lease, provided the tenant has received them in the same condition at his entry; but, in cases where land is let by the acre at the highest rent it will bring, and from 6 to 7½ per cent. added for the outlay, it does not appear reasonable that such buildings should either be supported by the tenant during his possession, or put into repair at his expense at the end of it, the interest being generally calculated in such a manner as to reimburse the landlord for his outlay, and to place the tenant in the same situation as the occupiers of houses in towns, where, with few exceptions, all repairs are made by the landlord.

The accommodation necessary for a farmer are the following:

1. A comfortable dwelling-house.
2. Barns of suitable dimensions.
3. A proper stack-yard, well inclosed and ridged up.
4. Stables.
5. Cow-houses.
6. Feeding-houses.
7. Hog-houses.
8. Poultry-house.
9. House for storing husbandry utensils.
10. Granaries.

Dwelling-house.—Upon a farm of from 300 to 500 acres, the dwelling-house should contain two good sitting rooms, and from four to six sleeping apartments for the family, besides closets, garret rooms for servants, &c.; the kitchen should be behind the house, and the dairy brew-house, store-house, laundry, &c. in the wings.

Barns.—Two kinds of barns are now in use, which, according as they are intended for thrashing out the grain by the hand or the mill, are differently constructed. The barns where grain is thrashed by the hand are still numerous, and of these many are very imperfectly, as well as improperly, situated, being upon a damp bottom, with scarce any other floor than what the surface originally had before the barn was built; independent of the risk of the floors being flooded during heavy falls of rain, which many of them are, it is obvious that, even in the best of seasons, the grain will become damp after it is brought into the barn, and, if thrashed out in the slow way by the hand, by the time the whole is ready for the market, it will have its value considerably diminished; a circumstance of the truth of which every farmer of observation is now convinced, as grain that is thrashed out by machinery, from the circumstance of its being separated from the straw immediately, and not permitted to remain upon the floor for above an hour or two, when brought to market is always much drier, looks better, and brings a higher price than that which is thrashed by the hand, and suffered to remain upon the floor for weeks, where it becomes musty, loses its colour, and is so raw that much of it is bruised and rendered useless in the working.

Thrashing machines have increased so fast of late years as to afford a reasonable prospect, that, in the course of a few years, very little of the produce of this country will be thrashed in any other way.

But, where the practice is persisted in of thrashing by the hand, a practice which, considering its obvious disadvantage, argues a blameable degree of folly and attachment to old customs on the part of the farmer, the inconveniences above-mentioned may, in some degree, be remedied by paying proper attention to the materials of which the floor is made, and raising it sufficiently above the reach of moisture. Where new barns are intended to be built, this can always be done; but where the barns are old, and the bottom damp, if the walls are of a sufficient height, laying sleepers about eighteen inches above the original floor, and constructing one with wood immediately above them, will have an immediate effect in rendering the barn dry; or, if the roof is so low as not to admit of constructing a floor of the kind mentioned, the whole earth within the walls to the depth of eighteen or twenty inches may be dug out, and a floor raised of the same height as the old one, which in that way will be a considerable height above the bottom; but, where the barns are very extensive, and the price of wood uncommonly high, as is the case at present, a very good and durable floor may be made by laying a uniform stratum of round gravel, covering it with a coat of well tempered clay, above which a mixture of clay, brick-dust, forge ashes, and a small proportion of lime, will make a hard uniform floor.

The brick-dust and forge ashes should previously be beaten very small, and well incorporated with the clay, using a sufficiency of water to bring the whole to the consistence of mortar; in that state the lime having been previously slacked should be incorporated with the other ingredients; the whole smoothed over with the back of a spade, and allowed to remain in a round heap for two or three weeks, at the end of which it should be turned over in the same manner as plaster lime, and after being rendered sufficiently soft with water, it may be spread upon the floor, an operation that will require some pains on the part of the workman. The floor, in the first instance, should have the coat of clay, that is laid immediately above the gravel, rendered perfectly smooth and uniform, by rolling, beating, or otherwise; the finishing coat, composed of the mixture above-mentioned, may then be applied, taking care to break the surface of the clay with shallow lines, in the way practised by plasterers for the purpose of making one coat adhere to another.

Some farmers, after they have laid these floors, in place of exposing them to the air, and suffering them to dry slowly, are in the custom of hastening the process by other means. The common way is to cover the floor thinly either with chopt brushwood or straw, which is set on fire and allowed to consume. In that way the floor, though it has the appearance of dryness, upon examination is found to be only crusted on the top. Cracked in many places, and instead of being durably useful, it is continually breaking out into holes; whereas, when it is allowed to dry gradually, the whole is firmly united and bound together, and forms a floor that, with ordinary care, will last for ages.

Thus much of barn floors; the walls and roof come next to be noticed. The former are for the most part rough mason's work, sometimes coarsely harled or dashed with lime, but more frequently without any preparation of that kind, and not one in fifty or a hundred are plastered. The roofs, whether of thatch or tile are in the same naked state. The consequence is, the walls have their crevices filled with dirt, and are an asylum for spiders and insects of every description, and the roof, if it is thatch, is not only hung with cobwebs, but serves as a hiding place for rats, mice, and other vermin; perhaps thatch should never be used for covering barns, as it will be found impossible to prevent insects and vermin of every description from taking shelter in it. Indeed, the perishable nature of thatch, the frequent repairs it stands in need of, and the great danger to which it is exposed from fire, renders it at once the least safe, and most expensive in the end, of any covering now in use. Tiles, though less in danger from fire, are by no means a good roof, and appear ill calculated for preserving either grain or other agricultural produce in any high degree of perfection. In summer, from their porous nature, the tiles readily admit a degree of heat by no means friendly either to corn, hay, or straw that may be under them; and in winter, during frost or wet weather, they as readily admit moisture; the effects of both need no explanation with those who have made observations upon the subject.

Slates, though more expensive in the first instance, are liable to none of the objections noticed above. When properly executed, a roof covered with them answers every useful purpose, and will last half a century with very slight repairs, an advantage that must give a decided preference to that kind of covering. The above observations apply with equal propriety to the covering of every other building belonging to a farm; to which may be added, that straw is now of such value for littering and feeding, and so indispensible for making a sufficient quantity of manure, that the substitution of tiles, or slates in its room, may be justly ranked amongst the means of improvement not only in

East Lothian, but in every other district throughout Britain.

The depredations of rats, mice, and other vermin being very considerable in particular years, especially in 1798, the following observations on the means of excluding them from barns will conclude this article:

1st. When the floor is entirely of wood, the space between the sleepers, upon which the boards are laid, should be entirely filled with washed gravel well beat down, an operation which, when properly done, will effectually prevent the entrance of either rats or mice; where this precaution is not taken, when the floor is laid, openings should be made at the bottom of the wall large enough to admit cats, a contrivance that will have the two-fold effect of destroying the vermin, and affording a free circulation of air.

2d. When the floor is of clay, the vermin generally burrow under the foundation, and have the entry to their retreats at the bottom of the wall; in such cases their access into the barn will be, in some measure, if not entirely, prevented, by mixing a considerable quantity of broken glass with the materials of which the floor is made. It does not appear necessary to mix the glass with the clay over the whole floor, perhaps two feet from the wall quite round will be sufficient.

3d. The top of the wall, as furnishing at least a temporary retreat for vermin, deserves also to be noticed; in every instance it is customary for the mason to level the top of the wall previous to the roof being put on, which, when the building is finished, is left in that state, by which a considerable space remains for the shelter of rats and other vermin; to prevent this, as soon as the roof is finished, the building of the wall on the inside should be continued upwards till it joins the roof, to which it should be closely united by hard plastering; with these precautions, together with smooth plastering the walls, barns may be kept pretty clear of vermin. It may not be unnecessary to add, that the barns upon every farm should be large, and, if any thing, rather beyond what is absolutely necessary, an extra accommodation of that sort being attended with much advantage, by the opportunity thereby afforded of keeping straw and other articles from the weather.

Stack-yards.—The stack-yards, though many of them are judiciously placed upon a dry bottom, properly ridged up, and sufficient pains taken to prevent the accumulation of surface water, do not all answer this description, many of them being situated upon a wet and uneven bottom, upon which little pains have been bestowed, either to render the surface uniform, or carry off the water; and in several instances the stacks are surrounded with water after every heavy shower, above which they are raised by stones, the mischief done in that way must be very considerable, and will be readily understood by every intelligent farmer; forming stack-yards into ridges pretty well raised in the middle, and covering the places where the stacks are to be built, either with rough stones, with a mixture of gravel, or paving them in the same manner as streets, would be attended with much advantage, and could be done at little expense. In a few instances, the stacks in this county are raised considerably above the surface, and placed upon pillars of wood or stone, principally the latter, with a covering of wood round the circumference, and beams laid across: this is a neat and useful contrivance, and well deserving of imitation. The inclosing of stack-yards is also less attended to than it ought to be, and, in not a few instances, there are large trees close to the wall, a circumstance very unfavourable to the winning or keeping of the stacks. As far as circumstances will allow, stack-yards should be inclosed with a sunk fence; in that way the stacks will have the full benefit of the air from top to bottom, a circumstance of no small moment, as it is often found, especially in wet seasons, where the fence of the stack-yards is only a low wall, that the whole of the stacks are damaged or spoilt as high up as the wall reaches, while the upper part is perfectly safe; should any addition be required to the sunk-fence, a railing upon the top will be quite sufficient.

Stables.—The stables, though greatly improved, and in many instances very perfect, are not, in general, what they ought to be; formerly they consisted of a range, longer or shorter in proportion to the size of the farm and number of horses, without any division, and with a rack and manger running from one end of the building to the other, at which, without being tied, the whole horses eat in common; but, within the last twenty or thirty years, the inconveniences attending these open stables, the most of them are now divided into stalls fit to hold two horses, generally the pair that work together either in the cart or plough; some are so wide as to hold two rows of horses, with their heels turned towards each other, and a common channel in the middle for receiving the urine. These double stables are exceptionable on several accounts—the first and most obvious objection is, that arising from their being within reach of each other's heels, by which many of them are hurt, or even have their legs broke; the servants are also much more exposed in going along a double stable, than where the horses are all on one side. The last and certainly most weighty

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objection is, that these double stables are, in general, much warmer than is consistent with the health of the animals; in that way they sweat much while in the house, become relaxed, and during the spring and winter seasons are more liable to colds and other distempers arising from too warm keeping through the night, and exposure to the severity of the weather in the day.

The custom, which is now a pretty universal one in the county, of having two horse stalls, which is certainly preferable to the old method of allowing them to feed in common, is, notwithstanding, liable to objection; for allowing the horses to be worked together, which begets an intimacy, and, as far as is possible, a degree of friendship; admitting also, that their age, strength, and tempers are perfectly alike, a thing seldom or never met with, it will in the space allotted them be nearly impossible for both to lie down and stretch themselves out at their ease during the night; this inconvenience will happen in a greater or less degree where only two horses of the best tempers are put together, but where three, four, or more of different ages and dispositions are confined in the same stall, the mischief will be much greater, as they will be perpetually hurting and annoying each other; and as contests of that sort are seldom long continued before one of the parties becomes the superior, it is evident the loser, by being deprived of food and rest, will have his spirit broke, get into bad condition, and either die or become good for nothing. The case is equally bad where an old and a young horse are fed in the same stall. If the old one has good teeth, which is not always the case, he will effectually prevent the young one from eating till he is satisfied, which will seldom happen till a great part of the allowance for both is exhausted; in this way many young horses, which, if fed by themselves, would be extremely valuable, are starved, dispirited, and rendered useless in the outset.

On the other hand, if the old horse has a bad mouth, and his companion a young one, with a good deal of spirit, the former will be unable to eat so fast as the latter, of course will get a very unequal share either of corn or hay. Owing to this many valuable old horses, that might have been serviceable for years, are prematurely sent to the dogs.

Stables that contain only one row of horses, with one horse in each stall, are a complete remedy for these inconveniences; and if the stalls are sufficiently large, and the divisions between them raised sufficiently high, not with spars, as is often the case, but with boards closely joined, each horse will be allowed to eat his proportion of corn and hay equally, and allowed to take the necessary rest without danger of being disturbed by a troublesome neighbour. The stable ought to be well paved, and of a sufficient breadth to leave a space of at least six or seven feet behind each for a safe passage to the servants hanging the harness upon the wall. The pavement should decline gradually, from the horse's head backward, towards the channel at his heels, which should also decline towards one end of the stable, where the urine may be received into a reservoir. Proper openings should also be left in the walls, for the purpose of ventilation: these should be fitted with sliding or flap boards, opened in the morning, when the horses go out to work, and shut in the evening: in that way the stables will be properly ventilated, and every risk of cold, from having these openings uncovered during the night, avoided.

In concluding this article, unquestionably of much importance to the farmers, not only of East Lothian, but of every other district in the kingdom, it may not be improper to hint, that a little more attention to cleanliness would be serviceable in more respects than one.

Except in a few instances, the dung is not taken out of the stable so often as health and cleanliness require; the consequence of which are, that while the horses have the appearance of a dry comfortable bed, they are half suffocated with the stench and fermentation of the dung thus accumulated. This is the case even in winter, when the dryness of their food, and the coldness of the atmosphere, prevent the process of fermentation from advancing hastily; but, in summer, when they are fed upon clover, or other green herbage, the moisture contained in which, aided by the heat, occasions a rapid fermentation. The smell of a stable where the dung has been allowed to remain for a week or ten days, is intolerable, and the volatile alkali generated, so strong as to penetrate and affect both the eyes and nose of persons entering into it, in a very disagreable manner. The consequence is, the horses are sickened and enervated by the heat and offensive smell during the night; a part of their food being impregnated with the effluvia, is loathed and rejected; and, in the morning, when they are taken out to work, in place of the sprightly appearance exhibited by animals that have been well fed and had a comfortable bed, their hanging ears, and heavy sluggish appearance, distinctly mark the state of the stables they have quitted. This remark, however, like every other upon malpractice, either in the treatment of animals, or cultivation of the soil, is to be understood as applicable only in particular instances. Correct farmers, (and East Lothian can boast of many such) will never think of applying observations of that kind to themselves; the reproof is meant for those of either breeding, or keeping more than are necessary for picking up the scattered grains, or offal, that would otherwise be lost about every farm. A low building, called a cruive, sometimes divided, sometimes not, and of no great extent, is the only accommodation thought necessary for them: but where distilleries, and starch works, are carried on, the breeding and fattening of hogs are particularly attended to, and form no inconsiderable part of the profits arising from these manufactures, as in their maintenance many things are consumed that would otherwise be lost. At all the principal starch works and distilleries accordingly there are separate buildings for the hogs, with every requisite accommodation for breeding, rearing, and fattening them.

Poultry-houses.—Poultry, like hogs, admit of being kept only to the extent necessary to pick up what would otherwise be lost; no farmer being convinced that there is the smallest advantage to be derived from breeding them for sale, especially where they require to be fed with grain: their accommodation is therefore only a secondary consideration with the farmers in this county.

Store-houses for Implements of Husbandry.—Houses for laying up the implements of husbandry are not common in East Lothian, a thing the more to be wondered at as its husbandry is so perfect, and so many valuable implements left exposed to the inclemency of the weather; all of which, except in a few instances, remain in the field the greatest part of the year, a part of the time drenched with moisture, the remainder exposed to frost, or the parching heat of a summer's sun, the combined effects of which must appear extremely obvious. The wood is rotten, the iron work corroded with rust, and the implement soon rendered useless. The expense of the different husbandry utensils is well known, and the purchase and repairs of them are, with justice, considered as a serious drawback on the profits of farming, an expense that might be considerably lessened were due pains taken to screen them from the action of the weather. In all new buildings, therefore, an accommodation of this kind ought to form a part of the farm offices.

Granaries.—Few farmers have granaries, a want much and justly complained of by many, and which not unfrequently obliges them to bring to market the grain they intend to sow. For the purpose of storing seed, therefore, as well as other uses, that require no explanation to intelligent men, it were to be wished that granaries were more general in the county.

Dung-houses, or yards, together with thrashing machines, will be particularly noticed when manures, and the different implements come to be spoken of. In this place it is only necessary to add, that the situation of many of the farm-houses seems to have been less an object of attention than the importance of the subject deserves, and, instead of being in the centre of the farm, being, in not a few instances, even upon lay farms, placed at their extremity, an error that is attended with incalculable loss in conducting every operation. It is now, however, pretty generally remedied, where new houses are built; these, together with their offices, are placed, as far as circumstances permit, about the centre of the farm, on a good bottom, and well supplied with water.

SECT. III.—COTTAGES.

THESE were formerly small, ill situated, and uncomfortable: of late years, however, they have been much improved. Few of them are now built of a less size than 20 feet by 17, with a height of 7 feet for the side walls. They consist only of one apartment, and are, for the most part, covered with thatch. This, as far as warmth is concerned, is unquestionably the most comfortable roof: it is, however, less cleanly than tile, harbours vermin, and is much more liable to danger from fire, with the further disadvantage of diminishing the quantity of manure.

Some people have considered the cottage system of this, and various other districts, as admitting of much improvement; they have insisted on the advantages of increasing their number, and thereby providing for the accommodation of people who might be employed in hand-hoeing, hay-making, and other necessary operations. If such persons were to reflect on what has generally happened, where extra cottages were kept, they might see cause to change their opinion, and leave matters to find their natural level. In fact, the cottages of this county are sufficiently numerous to accommodate the people who can be regularly employed, and, unless work be furnished, how can an additional number be kept? No doubt it would be desirable at particular seasons, such as summer and autumn, to have a greater supply of hands, but no farmer can keep such for a whole year, merely that he may have the benefit of their labour for three or four months. At the same time, many farmers, who have more houses than are required to accommodate their ordinary labourers, find it impossible to get tenants for them, because the lower ranks, who must trust to the public at large for employment, find it more convenient to reside in villages, where they are at liberty to choose their own employers.

CHAPTER IV.

SECT. I.—SIZE OF FARMS.

In this, as in every other district of equal extent, the size of farms varies considerably; some are as low as 100*l*. of rent, others as high as 1500*l*. but the medium may be safely stated at 400*l*.

In the lower and midland districts, and in part of the uplands, 200 acres of good land may be reckoned an average; but there are some from 500 to 1000 acres.

Of late years the size of farms has been considerably augmented, a system that is fast increasing, and, to all appearance, with much benefit to the public. About 50 years ago the farms were very small, and the houses, in place of being distinct, each in the middle of its own land, four, five, or more, together, with their different cottages, formed a kind of villages, irregularly built; and where the cottagers and dependants enjoyed certain liberties, not quite consistent with the mode in which modern husbandry is carried on. A great part of these villages are now in a state of decay, and, in their place, the distinct farm-house, with its own offices and cottages, is almost every where to be seen. This change, and the separation of the inhabitants, has contributed not a little to increase the general and unfounded clamour that has been raised against large farms.

Without entering far into a controversy, where a great deal has been said, and little proved, on one side, it is only necessary to state the effects that have invariably arisen from the system, so far as it has hitherto gone in East Lothian. In every part of the county, where two, three, or more, small farms have been turned into one, the miserable appearance of the fields, the unproductive and imperfect mode of cultivation formerly carried on, has been exchanged for the pleasing picture arising from the perfect and productive system of modern husbandry; and, though in some instances, where two, or more sheep-farms in the Lammermuir district have been laid into one, the population has been diminished, yet, upon the arable farms, it has almost invariably been increased, and the produce of such lands has been augmented in a high degree, facts so striking as to supersede the necessity of reasoning upon them.

The only apparent change, in point of population, consists in the diminished number of tenants, many of whose situations were very few degrees better than that of the ploughmen upon the present farms; such diminution, in the number of that class of men, in place of being a loss, has been productive of much advantage to the community. It is not from the first appearances, arising from any change, that the impression is made upon a comprehensive mind; its remote effects are certainly the point to which the attention of philosophy and common sense are directed; and if its ultimate benefits are greater than the imaginary ills, or temporary inconveniencies seeming to arise from it, no question can remain as to its utility. The augmentation of farms affords a convincing proof of the truth of this reasoning. A change of system has brought the small farmers to embrace a line of conduct which nothing short of necessity could have compelled them to do; but which, even in the outset, has taught them the advantage of the change, both to themselves and the public.

In place of keeping their sons about them in a state of almost absolute ignorance, and which, when compared with productive industry, might be termed idleness, as was formerly the case, they have given them an education that has qualified them for other pursuits. But it required nothing less than the change of system that has taken place, to reconcile them to a measure that has, even in the very first trials, raised many of their children to distinction and independence in a few years, who, if the system of small farms had continued, might, after a life of hardship and anxiety, have died upon one of these farms without being able to leave his family a shilling. This is no exaggerated picture, as the records of the county can furnish many instances of poverty and insolvency amongst that description of farmers.

It requires little observation to convince men of sense, that the improved system of modern agriculture can neither be carried on, upon a small scale, nor with a slender capital. Upon small farms, where the circumstances of the tenant are narrow, as they almost invariably are, he is unable to do justice to his land, either in the way of tillage or manure; and though, if his rent is low, he may make shift to struggle on for many years, earning a bare subsistence to himself and family, from the scanty returns arising from his management, and though he may appear, and really be, contented with such a situation, the community sustains a loss, in direct proportion to the difference between such a system, and one calculated to call forth every productive power of the soil. Upon large farms the picture is reversed; the capital of the farmer enables him to adopt and put in practice every improvement; his wet lands are *drained*, his foul fields are *summer fallowed*, *lime* and dung are purchased in sufficient quantity; his fields are enclosed, and every thing done that can ensure a lasting increase of produce. Amongst enlightened men, there will be no dispute upon the question, how that additional produce is to be employed? In finding an additional population, without doubt, and as Britain has, for a long time back, even in the best of years, imported a great deal of grain, it is evident, that without the improvements made upon large farms, the importation must either have been made to a much greater extent, or a part of the people must have starved or emigrated.

It has been argued by many, from whom juster views might have been expected, upon matters where common sense alone is necessary to form a correct judgment, that much mischief may be produced by the occupier of extensive tracts following a mode of cultivation, which, though profitable to himself, may prove injurious to the public; to minds under the influence of such prejudices, it is no easy task to offer arguments, that will be in any shape convincing; the following is the only one offered in this place, and perhaps the only one necessary.

It is now well understood, that the soil, climate, local situation, and other circumstances connected with the agriculture of any district, leads to some particular system, which experience has proved the best suited to the situation, and wherever such a system has been established upon such grounds, it will be continued from a conviction of its being the most profitable, and that without any regard being paid to the size of the farm. If a whole district will yield more profit in grass than in corn, that district ought to be, and will be, in grass, as in that way it will be most productive, and vice versa. Agriculture, rightly understood, is the art of rendering the earth as productive as possible, and converting that produce into money. Farmers, like every other description of men engaged in business, naturally wish to get as much money as possible; and as all the money a farmer receives, is got for the necessaries of life, it may safely be inferred, that, in whatever district he lives, or whatever system he follows, the sum he receives will be in exact proportion to the quantum of food he has furnished, and the greater that sum is, the greater will be the number of mouths for whom he has raised subsistence.

Character of Farmers.—In point of enterprise, information, and professional skill, the farmers of East Lothian are entitled to rank with those of any district in the kingdom. In the original Survey of the county, several ingenious reasons were assigned for this superiority, but the principal cause certainly is owing to the example set by many of their ancestors, of a perfect cultivation, joined to the great capital possessed by most of them, and the good original education they receive, which, by giving them liberal views early in life, fits them for that future intercourse with their brethren, on both sides the Tweed, by which they are enabled to acquire the most correct ideas of every useful improvement. These early advantages are considerably improved by the manner in which they live, and the frequent and friendly intercourse they have with each other, both in their own families, and upon occasions where their professional concerns call them abroad, either for the purpose of marketing their grain or purchasing live stock; to which may be added, that many of them make annual excursions into the best cultivated districts in the kingdom, where they have an opportunity of observing the practice of these districts, and comparing it with their own; and such is their candour and good sense upon these occasions, that, though they may see much to censure, they neither withhold their approbation where it is due, nor are backward in adopting the improvements of others. Their mode of living unites at once the comforts and the elegances suited to their station; and, though most of them are adepts in their profession, and very desirous of giving and receiving information, upon every point relating to it, their early education, which, in many instances, is perfected at the University, together with their application to books afterwards, enables them to make a very respectable figure in conversations upon scientific and literary subjects. In short, they are a respectable and highly estimable body of men, and perhaps enjoy a greater share of that distinction and recompense to which their abilities and capital give them so just a title, than the same number of their brethren can boast in many other districts.

SECT. II.—RENTS.

Formerly a good deal of the rent of this, as indeed of every other county in Scotland, was paid in produce, and continued to be so till within the last fifty years, when most of them were converted into money, and now nearly the whole rents of the county are paid in that way. Some proprietors, however, are of opinion, that one half only should be paid in money, the other in kind; and assign as a reason, that the profit or loss, arising from any material rise or fall in the price of grain, would, in that way, be equally divided between the landlord and tenant. Such a mode of payment is apparently founded in equity and common sense, and, as far as plentiful crops and cheap markets are concerned, is highly favourable to the tenant, but in unfortunate years, such as some we have lately witnessed, in which the crops have been greatly deficient, and the prices uncommonly high, most of the great farmers, especially those upon new leases, would have been nearly, if not entirely, ruined by paying one half their rent in kind.

Personal Services.—These were formerly considerable, but are now almost in every case entirely abolished. A few tenants, however, drive coals for their landlords, but the burden is so trifling as hardly to deserve notice. The terms of paying rent for land are different in different cases, as will be seen under the article of Leases.

SECT. III.—TITHES.

Many years ago, vicarage or small tithes were drawn in several parishes, at present none are existing, the Court of Session having, in every process for the augmentation of stipends, that has come before it, uniformly substituted money in their room. This commutation is considered as highly advantageous on both sides; formerly the payment of vicarage produced much wrangling and discontent.

SECT. IV.—POOR'S RATES.

Poor's rates, so severely felt and justly complained of, on the other side of the Tweed, are scarcely known in this county, except in the parishes where the principal towns are situated. In these places, they may amount to about 2 or 2½ per cent. upon the real rent, and are paid, one half by the landlord, the other by the tenant. In the country parishes, the money collected at the church doors on Sundays, together with donations and the dues paid for mortcloths, &c. are generally adequate to the support of the poor, who are in few cases numerous; a certain degree of honest pride sets the most of the lower ranks above asking any assistance, as long as they are capable of labour, of which the improved state of agriculture furnishes abundance for all ages, from the child of 7 years old to the aged person of 70. It is no uncommon thing with people of that class, who have lived soberly and enjoyed good health, to have laid up a small sum for their support, when they are unable to work: this renders their old age easy, and prevents them from becoming burdensome to the community.

The above is the general history of the poor; and the provision made for them in ordinary years; but in times so distressing as those which we have witnesssed in some past years, when the most rigid œconomy has been found insufficient to enable the lower ranks to support themselves and families by their earnings, a different, as well as a more extensive, plan of relief has been found necessary, and assessments, in proportion to the extent of property and occupancy, have been general throughout the county. Greatly to the credit of the farmers, they, with few exceptions, came forward voluntarily, and assessed themselves to a very considerable amount; the money raised by these assessments was laid out differently in different parishes, according to the judgment of the persons intrusted with the management; in general, it was employed in purchasing grain, which was afterwards made into meal, and sold to the poor at reduced prices, very little above those of ordinary years, affording, by that means, a most effectual relief to the whole of the labouring poor, in the early part of the season; but as the season advanced, the price of that article rose so much beyond that of other grains, that recourse was had to barley, wheat, and pease meal, which were sold in certain proportions, continuing, at the same time, as much oat meal as was sufficient to make at least one meal a day for the younger part of the families, to whom, from their having tasted scarce any other food for breakfast from their infancy, it was indispensible. The following statement of the transactions of the Committee, appointed to conduct the distribution of the meal in the parish of Preston, in 1800, will set the matter in a striking point of view.

The quantity of grain of different kinds purchased was 383 bolls, for which 764*l.* 3*s.* 5½*d.* was paid; the produce in meal was 434¼ bolls; the average price, including all the different kinds, being 1*s.* 1¼*d.* per peck of 8lbs. Dutch; the number of families to whom it was distributed was 128, which, reckoning 6 persons to each family, gives 768 persons; the money arising from the sale, and received by the Committee of management, amounted to 391*l.* 0*s.* 6½*d.* which, deducted from the original purchase money, left a deficiency of 368*l.* 13*s.* 11½*d.* to which the sum of 14*l.* 16*s.* 3*d.* is to be added, for coals purchased and given gratuitously to the most indigent families. The whole expense of supporting 768 persons, in a state of comfort, little short of ordinary years, amounted to 383*l.* 10*s.* 2½*d.* or not quite 10*s.* each, a convincing proof what substantial advantage may arise from the expenditure of a small sum, under the direction of good judgment. It is hoped, the above sketch, which has been submitted to those in power, will serve as the basis of some legislative provision for that class of persons, over the whole kingdom. Indeed the principle ought not to be lost sight of, even in years of plenty, as the same benefit will certainly arise, from giving the ordinary claimants upon parish funds, at least a part of their allowance in meal, or common necessaries; such a regulation would be particularly useful in great towns, where the greatest part of the necessitous poor are of a description that have reduced themselves to misery by drunkenness and other vices; and who, the moment money is put into their possession, in place of employing it in the purchase of proper necessaries, carry it to the dram shop, where a great part, sometimes the whole, is spent, without the least regard being paid to the future misery in that way entailed upon themselves and their families; whereas, were they to receive a loaf, or a quantity of meal, few of them are so very bad as not to startle at the idea of misapplying, or giving away, the bread their families should eat: and though, to minds capable of reflection, there is no real difference between them, yet nothing is more certain than that many a wretch, with a starving family, would carry home a loaf given him for their support, who, if a shilling were put into his hand, would carry it to the whiskey shop; and, as the intention of all charity is to relieve the immediate wants of the indigent, too much attention cannot be paid to see that every farthing, so given, is applied to the intended purpose.

SECT. V.—LEASES.

THE whole lands in East Lothian, with the exception of those in the natural possession of the proprietors, and the glebes of the clergy, are under lease, a circumstance highly favourable to improvement; and the ancient practice of which has certainly contributed, in no small degree, to the early improvement of this district. The endurance of leases was formerly 38, 57, or 63 years, to which, upon many estates, the lifetime of the possessor, at the end of that term, was added. At that time the greatest part of the best lands were unenclosed, and in a situation that required a long interest in the property to induce the tenants either to enclose or make other substantial improvements. At present, unless under very particular circumstances, no leases are granted for a longer space than 19 or 21 years: in a few instances, however, where the lands are still unenclosed, and where much requires to be done in the way of draining, limeing, and other improvements, leases of 31 years are granted, as an equivalent for the outlay of money.

Covenants.—The covenants in leases were formerly few, and at present are by no means numerous; they relate chiefly to the preservation of the houses and fences, and the rotations of crops for the last four or five years; it is believed there is no instance in the county of the rotation being laid down for the whole lease, though, in many cases, it is expressly stipulated, that only a certain proportion of the arable land shall be in tillage: the quantity of each grain to be sowed annually is also, in some cases, defined. In sect. 11. of chap. III. notice is taken of the covenant respecting buildings, which consists in their being delivered in good order to the tenant, at his entry, by the landlord, and left in the same condition by him, at the expiry of the lease: this argument comprehends not only such buildings as he may find upon the farm, but such as he may erect, unless there is a special agreement to the contrary. In regard to fences, if the farm is enclosed the agreement is the same as the preceding, and consists in their being properly kept during the possession, and left in a sufficient state at the end of it. The practice of allowing the outgoing tenant to carry away or sell the straw and dung of the last crop, was common in most of the old leases, but is now very properly debarred, though not in a way to give complete satisfaction, the obligation upon the outgoing tenant being to leave both to his successor, at a certain price, to be determined by men acquainted with their value; but, as it seldom happens that a person quitting a farm, unless he does so voluntarily, has any cordial liking for his successor, he generally falls upon expedients to give him as much trouble as possible; in that way matters of this kind, instead of being settled amicably, as might naturally be expected, become the subjects of long and expensive litigation. The worst part of such contests is, that, being taken up more upon grounds of pride or ill nature than of interest, they are carried on with a degree of keenness and animosity seldom met with in questions where men appeal to the laws of their country on other subjects. Disputes of this kind, and their consequences, point out the necessity of some system better calculated to prevent discord, and promote the agricultural interests of the county.

Upon every farm, the straw and manure, at the expiration of the lease, should be the property of the landlord, and, by him, conveyed, along with the buildings, to the incoming tenant, who, in his turn, should leave them to his successor; and all matters in dispute should be settled, not between the outgoing and incoming tenant, but between the farmer and the proprietor. Such an arrangement would have a good effect in more respects than one, whatever resentment the person quitting the possession might entertain for the man who had supplanted him, would be confined to his own mind, and, like most of the angry passions, where scope is denied them, die away and be forgotten, while the superior means of his landlord would operate to make him fulfil his agreement without any dispute, for there can be no manner of doubt that, upon many occasions, men, reckoning upon the uncertainty of the law, in contests with their equals, even when they are doubtful of their right, would, without the smallest hesitation, give up the point to a superior, with whom they thought themselves unable to contend.

It is to be hoped, however, that this observation will be understood, not as meant to support the oppression of the great, which their superior means gives them the power of doing, but as a mode of preventing the disputes of equals, who so frequently come into courts of law from a difference of opinion, or a clashing of interests. To the honour of the proprietors of this county be it said, that fewer actions have been brought against tenants, for the last 50 years, than in any district in Scotland, and in a great majority of such cases the tenant has been to blame.

In regard to the rotation of crops, or the proportion of land kept under particular crops during the whole of a lease, any regulation of that kind, to those who are acquainted with country affairs, carries absurdity in the face of it. Innumerable circumstances concur every year almost, that oblige the farmer to depart from plans dictated by the best judgment, and to which his adherence would be attended with loss to himself and the public. The consequence therefore of any covenant, binding a tenant to a particular rotation during the whole of a lease, must be extremely obvious: besides, the immediate advantage of good management is now so well understood, that it is the interest of every farmer to cultivate his land as highly as possible to the last day of his possession. Any restricting clauses should be confined only to the last four or five years of the lease, and should be directed chiefly to the quantity of grass and summer fallow left, to the state of the land, when the grass is sown out, the quality of the land upon which it is sown, and the quantity and kind of the grass-seeds.

Before quitting a subject of such importance, it may not be improper to hint that much benefit might arise from a general plan of leases being drawn up, not by men of the law, as they generally are, but by the proprietors and farmers, who certainly are the best judges of country affairs. Leases of that kind would contain no perplexing covenants, and like our present system of morals, would oblige the tenant to nothing but what was obviously calculated to promote his own interest. Indeed, if it is ever wished that the advantage of proprietor and tenant should be united, which they certainly ought to be, no method appears so well calculated to promote that purpose, as by having a form of leases, containing every necessary regulation, suited to the circumstances of the county, drawn up under the eye of a committee of the most respectable proprietors and farmers.

SECT. VI.—EXPENSE AND PROFIT.

Upon the subject of expense and profit, it is obvious that no surveyor, be his abilities what they may, will ever be able to procure information sufficiently accurate to meet the public eye, the expense in every instance depending upon the mode of management, and the profit upon good or bad seasons, combined with that management; together with climate, distance from markets, and many other circumstances. Upon the best arable lands, the expense of stocking a farm of 200 acres may be about 1,200*l.*; but if the farm is foul with weeds, or very much out of order, considerably more outlay will be required for the first four or five years of the lease. In some of the reprinted surveys, statements of expense and profit are given, with much appearance of accuracy; but, however well such statements may look upon paper, it is obvious they cannot be correct, as no two farms, of the same extent, will be found to agree. It is certain, that owing to the capital employed, and the skill and enterprise by which the East Lothian farmers are so eminently distinguished, the expenses of management are greater than in almost any other district, and it is to be hoped that the attendant profits are in proportion; otherwise those concerned would necessarily suffer in the first instance, and agriculture be ultimately injured.

CHAPTER V.

SECT. I.—IMPLEMENTS OF HUSBANDRY.

THE implements made use of in East Lothian, are the same as those of other counties equally improved; they may, with propriety, be divided into five classes, viz.

1st. Implements for tillage, and preparing the land for seed, comprehending the different kinds of ploughs, harrows, rollers, &c.

2d. Implements for sowing, comprehending the different kinds of drilling machines.

3d. Implements for weeding: these comprehend the horse-hoe, different kinds of hand-hoes, weed-hooks, &c.

4th. Implements for cutting down, and carrying the crop: these consist of the sickle, the scythe, and the different kinds of corn carts.

5th. Implements for separating the grain from the straw, and cleaning it for market: these consist of the flail, the thrashing machine, the fanners, &c.

I. IMPLEMENTS FOR TILLAGE.

Till within the last 30 years, the Scotch plough, generally speaking, was the only one in use; it was of large dimensions, and required the strength of four horses to do ordinary work: in not a few instances two more were added. That implement was succeeded by one, constructed something like the Rotheram plough, which was afterward amended, by the late Mr. James Small of Ford.

This plough is provided with a mould board of cast metal, constructed in such a manner as to make less resistance than any other hitherto tried, and is universally drawn by two horses. A drawing, and particular description of this implement, are given in the reported Survey of Mid-Lothian, and would have been inserted in this place, but from a conviction that it is now so well known throughout Scotland, and indeed the greatest part of England, as to render it unnecessary. The price is from 2*l*. 10*s*. to 3*l*. fully mounted.

The harrows commonly used are of two kinds, viz. the large brake, worked by two horses, and the common small harrow, worked by one. The brake is so constructed with joints, as to bend, and accommodate its shape to the curvature of the ridges: it is chiefly employed upon strong lands, especially fallows, and upon soft lands, where the furrow is much bound with couch-grass, or other root weeds: the small harrows are afterwards used with advantage, and at once complete the pulverization of the soil, and separate such of the root weeds as have escaped the brake. Where the land is clean, and the soil sufficiently reduced, the brake is very seldom used for covering the seed, the common harrow being found fully adequate to that purpose. This implement appears susceptible of considerable improvement; the number of teeth may certainly be increased with advantage, and the direction of the draught so much altered as to give them greater effect, by making more ruts.

Roller.—Rolling is practised in the county to a certain extent, both in reducing the soil before sowing, and upon the young crops, both of corn and grass. When conducted with judgment, the practice is highly useful, and admits of being considerably extended, especially upon all winter crops, after severe winters, and that without any regard to soil, as both loams and clays, after much naked frost, have their cohesion so much broken, as to leave the plants quite loose and almost without any establishment. Rollers are chiefly of stone or wood, and in a few instances of iron. Where wooden rollers are used, they often have a box upon the top for holding stones, for the purpose of increasing their weight, when it is found necessary. * Both wood and stone rollers have a fault, which, when they are used upon growing crops, is considerably felt; in turning short, the motion round the axis is nearly lost, and the implement, by that means, in place of rolling round in the manner it does when drawn straight forward, comes round, in the same manner as if it had no axis, and in that way both the plants and soil are drawn along with it. This defect is completely remedied, by having the roller in two pieces to move round a common axis; most of the cast iron ones are of this construction: In turning, one end of the roller is drawn forward, while the other is rolled backward, and the soil and plants left uninjured.

2. IMPLEMENTS FOR SOWING.

Drilling Machines are used chiefly in the sowing of turnips, beans, and pease, and are employed for this purpose with great advantage. Till within these few years, these machines sowed only a single drill at a time, now, however, they are so constructed, as to sow three or four at once. For turnips, these large ones answer extremely well, and save much labour; they also answer well for pease and beans, where the land has been previously ridged up, a practice now become very common, especially where the soil is dry and free from couch-grass or other root weeds; but in cases, where beans are ploughed in, which is by far the most common mode, the single machine or common drill barrow, worked by a woman or a boy, is the best, and indeed the only one, that can be used. The turnip machine has a coulter and roller appended to it, which at once cover the seed, and give a due degree of firmness to the soil. Hitherto the drilling of white crops, in this county, has had for its object, chiefly the saving of seed, as the drills are often so close as to admit of little culture. Within these few years, however, the drilling of white corn crops has increased considerably, on the light lands about Dunbar, and it has been found, that by making the intervals such as could admit the use of the Dutch-hoe, great facility has been afforded, for destroying annual weeds.

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* This is a bad practice, for, though it increases the weight, it occasions much more than proportionable increase of draught, by throwing all this additional pressure upon the axis or gudgeon. In fact, the draught, in consequence of the friction, is almost double of what it is in rollers of equal weight constructed on proper principles.

3. IMPLEMENTS USED DURING THE GROWTH OF THE CROPS.

The implements, used during the growth of the crop, are the horse and hand-hoe, the small and double mould-board plough, the Dutch-hoe, and the different kinds of weed-hooks.

The Horse-hoe or Scuffle is so well known as to need no description; that implement is now so constructed, as to be easily accommodated to any width of a drill; it is used more or less in all drill crops.

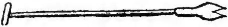
Hand-hoe.—The hand-hoe is very generally used, as will be seen, when the different kinds of drill crops come to be noticed, it is differently formed, but every variety of it is so well known as to require no description.

Small Plough.—The small plough is the same as that used for ordinary tillage, but upon a reduced scale, and is used in giving the first, second, and third ploughings, to turnips, beans, potatoes, &c.

Double mould-board Plough.—That implement differs in nothing from the foregoing, except in having a temporary mould-board of wood added to the left side, and a double-pointed share or sock ; it is employed only in laying up the earth equally to both sides of the drill, after the other ploughings are given, and is considered the finishing operation, unless where hand-weeding and picking may afterwards be thought necessary, for taking out such weeds as grow in the drills amongst the crop, and which cannot be destroyed in any other way. This implement is not much used.

Dutch-hoe.—The Dutch horse-hoe, provincially called scraper, is used very generally in cleaning beans or turnips, and a hand-hoe of the same name is often used in gardens ; there cannot be a doubt, that, if the drilling of white crops were more general, that implement would be found very useful.

Weed-hooks.—The common weed-hook is chiefly used in this county, and is a useful instrument for cutting weeds of a certain description, such as thistles, &c. ; but, as the former of these, when cut either at an early period of the season, or before much rain falls, are apt to spring up afresh and produce four or five stems in place of one, they ought, perhaps, in every instance, to be pulled, or, if they are cut, the operation should be done with a chisel, of a form resembling that in the sketch, which, if properly used, will cut them below the surface.



This implement, being placed near the root, and pushed downwards and forwards at the same time, will cut the plant, at least a couple of inches below the surface, and by going nearer the root, will, if it does not destroy it entirely, at least injure it more than when it is cut an inch or two above the ground.

4. IMPLEMENTS FOR CUTTING DOWN AND CARRYING THE CROP.

The implements commonly used for cutting down and gathering the crop, are the scythe, the rake, and the reaping hook. The first of these, the scythe, is less employed than might be expected in a county where so much grain is raised; upon the best lands, indeed, especially in wet seasons when the crop is lodged, the use of the scythe is inadmissible, but in ordinary years, a great part of the crop admits of being cut down with that implement, at much less expense than by the hand, with the additional advantage of its affording from a third to a fourth more fodder, than what is obtained, under common management, where the crop is cut by the hand, an object of no small importance in any situation, but especially in places, where, owing to the distance from great towns, there is no opportunity of purchasing manure. It is objected to the scythe, that it does not lay the heads so regular, as when the crop is cut by the hand; this certainly is the fact, and unquestionably is a disadvantage, especially where thrashing machines are used; it is also said, that, in cases where the crop is thin, and at the same time completely ripened, if the stalk has acquired a degree of hardness sufficient to bear the stroke of the scythe, the shock will be so great as to shake out many of the grains; or, if the straw is of a soft texture, in place of being cut and gathered by the scythe, the crop will be beat down, and a great part of it left uncut. These objections, however, apply only to cases where it has been allowed to stand too long, as in every instance, where it is cut at the proper period, it is found to bear the stroke of the scythe, without either shaking out the grains or breaking down the stalks.

Sickle.—Formerly two kinds were used, the broad and narrow; the former is now entirely laid aside, and the latter substituted in its place. As the sickle is an instrument in use everywhere, and as the one used in this county possesses no peculiarity, any particular description is unnecessary.

Rake.—When the crop is cut by the scythe, the common hay-rake is generally employed, and, in expert hands, answers the purpose extremely well; the same implement is sometimes used when the crop is cut by the hand, a person following the cart, and gathering what is left on the places where the stooks have stood. A different kind of rake has been partially tried, and found to answer the purpose, much better than the hay-rake. The length of the head is from ten to fifteen feet, the handle about seven feet, with a piece of wood across the end of it, by which it is drawn by two men; the teeth are of wood or iron, the last are the best, as well as the most durable, and are a little bent forward at the point, which gives them the power of retaining and carrying the ears along with them, much better than they would otherwise do. To make clean work, especially if the ridges are gathered, the field is raked across; in that way, every thing is taken up; but, when it is preferred to draw the rake in the direction of the ridges, it may be considerably improved, by cutting the head into two or three lengths, and joining them with hinges, which will allow it to bend and accommodate itself to the curvature of the ridges. The advantage of this kind of rake has been found considerable, even in cases where every possible attention has been paid to the cutting of the crop; but, as it frequently happens, that owing to dampness, greenness of the straw, or a foul grassy bottom, it is necessary to leave the crop unbound for a day or two, during which, if it is overtaken by a high wind, much of it will be scattered and lost, unless considerable pains are taken to gather it, by hand-raking and otherwise,—Where the long rake is used for that purpose, the expense will in no instance exceed *4d.* sterling per acre. An experiment, made upon a field of 30 acres, will convey some idea of the benefit that may derived from the use of that instrument. The field was in barley, and the rakings, when thrashed, yielded

	£.	s.	d.
7½ Bolls, sold at 28*s.* per boll, - -	10	10	0
150 Stones straw, sold at 6*d.* per stone,	3	15	0
Total produce	14	5	0

	£.	s.	d.
Expense of raking 31 acres, at 4*d.* per acre, - - - - - - - - - -	0	10	4
Bread and beer to the rakers, - - -	0	1	6
Carting from the field, stacking, &c. -	0	2	6
Thrashing, - - - - - - - - - -	0	7	6
Total expense	1	1	10

Which deducted from 14*l.* 5*s.* leaves a profit of 13*l.* 3*s.* 2*d.* sterling. It is necessary to observe, that about ten acres of the field were left unbound, and a good deal disordered by a high wind, but, as considerable pains were taken in the binding, the proportion obtained from these ten acres did not greatly exceed what was got from the rest of the field, the whole of which was cut with a great deal of care.

Carrying the Crop.—Many years ago, the crop was brought home on sledges, afterwards on close carts with a frame on the top; at present, hay and the different kinds of grain are carried upon the open spoked cart, known by the name of corn-cart, which, from its lightness and construction, seems better adapted to the purpose, than any thing of the kind hitherto employed.—These carts appear capable of some improvement, by lining their sides and bottom either with thin planks or canvass, the expense of which would be very inconsiderable, and the whole of the grain, beat out in the operations of loading, unloading, and the carriage from the field, saved.

Close Cart.—The close carts, when employed solely for the purposes of husbandry, contains somewhat more than a cubic yard; the wheels are for the most part mounted upon iron axletrees, which, by diminishing friction and lessening resistance, renders them easier drawn; formerly the wheel was much dished, from a mistaken principle, which a better knowledge of mechanics has now rectified; the spokes are now nearly perpendicular to the axis, in that way, the circumference pressing in that direction from all sides towards the centre, the wheels move equally and smoothly round; whereas formerly, when the circumference was so much without the centre, the wheels, in place of touching the axletree equally, and moving round smoothly and easily, formed a kind of angle with it, and worked only on the external and internal edges of the bushes; in that way the resistance was considerably increased, and both the bushes and axletree soon destroyed.

5. IMPLEMENTS FOR SEPARATING THE GRAIN FROM THE STRAW, CHAFF, &c.

Till of late years the operation of separating the grain from the straw was performed by the flail, to the manifest injury of both the farmer and the community, for though in some cases the work was tolerably well performed, yet in a great majority of instances it was otherwise. A quantity, perhaps equal to the seed over the county, was lost even in the best cases, but where the allowance to the thrasher was either a proportion of the produce, known by the name of *lot*, generally a 25th part, or when he was paid in money, at so much per boll, the temptation to do the work in a slovenly manner was so great, that a quantity, perhaps double what was required for seed, was lost upon many farms; an evil that did not escape the notice of intelligent men, by several of whom attempts were made to construct machines, that would do the work more perfectly. The first of these was invented by a Mr. Menzies, brother to the then Sheriff Depute of this county; the machinery was driven by a water-wheel, which put in motion a number of flails of the same kind with those used in thrashing by the hand. Trials made with these machines were so far satisfactory, that a great deal of work was done in a given time, but, owing to the velocity required to do the work perfectly, they soon broke, and the invention fell into disgrace.

Some time in the year 1758 another attempt was made by a farmer in the parish of Dumblane, in Perthshire. His machine was constructed upon principles similar to the Flax-mill, having an upright shaft with four arms enclosed in a cylinder, 3½ feet in height and 8 in diameter, within which the shaft and its arms were turned with considerable velocity by a water-wheel.— The sheaves, being presented by the hand, were let down from the top upon the arms, by which the grain was beat out, and together with the straw descended through an opening in the floor, where they were separated by riddles and fanners also turned by the water-wheel.

About twenty years after, a third attempt was made by a Mr. Elderton, near Alnwick, and a Mr. Smart, at Wark, both nearly about the same time. Their machine was so constructed as to act, by rubbing in place of beating out the grain. The sheaves were carried between an indented drum about 6 feet in diameter, and a number of rollers of the same description ranged round the drum, towards which they are pressed by springs, in such a way as to rub out the grain, when the drum was turned round. Upon trial this machine was also found defective, as along with its doing very little work in a given time, it bruised the grain, and so materially hurt its appearance, as to lessen its value considerably in the market.

The machine, in its then imperfect state, was seen by the late Sir Francis Kinloch, Bart. of Gilmerton, a gentleman well acquainted with mechanics, and who had paid much attention to country affairs; it occurred to him, that the machine might be rendered more perfect, by enclosing the drum in a fluted cover, and fixing on the outside of it four fluted pieces of wood, capable of being raised a little from the circumference by springs, in such a way as to press against the fluted cover, and to rub out the grain as the sheaves passed between them; but after repeated trials, it was found to bruise the grain nearly as much as the model, from which it was copied. In that state it remained for some time, and was afterwards sent by Sir Francis to a very worthy and ingenious character, Mr. Mickle of Know Mill, in his neighbourhood, (a millwright by profession,) who had for a considerable time employed his thoughts upon the same subject. After much consideration and several trials, it appeared to Mr. Mickle that the purpose of separating the grain from the straw might be accomplished upon a principle different from any that had hitherto been attempted, namely, by skutches acting upon the sheaves by their velocity, and beating out the grain, in place of pressing, or rubbing it out; accordingly a model was constructed at Know Mill, in which the grain was beat out by the drum, to which it was presented through two plain feeding rollers, which were afterwards altered for fluted ones. The first machine, on a large scale, executed upon this principle, was done by a son of Mr. Mickle's, for a Mr. Stein of Kilbagie, in the year 1786, which, when finished, performed the work to the satisfaction of all parties. A patent was afterwards applied for, and obtained in 1788.

These machines are now used upon most of the principal farms in the county, and are wrought in different ways, by *steam*, by *wind*, by *water*, and by the strength of horses.

Expense.—A horse machine of the first powers, with its appendages of rakes, fanners, &c. a few years ago could be erected for the sum of 100*l.* or 120*l.* sterling; but owing to the present high price of materials, and workmanship, the expense will be considerably more. A wind machine costs about 250*l.* independent of the buildings: these, however, cannot, with propriety, be included in the expense, as, upon almost every farm, barns to a considerable extent are required, even when the grain is thrashed by the hand. The only defect of machines worked by wind, upon their first introduction, consisted in the risk to which they were exposed, by stopping them to take in the sails, which could scarcely be done during a brisk gale: in that way it sometimes happened that when the wind freshened considerably after the machine was set agoing, either the sails were torn to pieces, or the arms broken off. That defect, however, is now remedied by a late invention of Mr. Mickle, by which the whole sails can be taken in, or let out, in less than half a minute, merely by a person pulling a rope within the house;* by this contrivance the sails are, with ease and expedition, proportioned to any degree of wind, a uniform motion is produced, and all danger of straining or hurting the machine is avoided.

The number of hands required for working one of these machines is from five to six. The grain is commonly carried into the barn in a cart, from which it is handed up to a person who again hands it to the man who feeds the machine.

There is only one thrashing machine worked by steam, in East Lothian: it is situated in the immediate vicinity of a colliery, and, from the cheapness of fuel, is worked at a very trifling expense.

The first thrashing machine, as already stated, was erected in 1786, since which they have increased so much as to be now common upon almost every farm, of any tolerable extent, throughout the county, even upon some very small. They have been introduced upon a reduced scale, at a price so low as 40*l.*; these small machines, having little work to do, and that little being, in general, done slowly, answer the purpose tolerably well; but, though cheaper in the first instance, they are, in the end, more expensive than larger ones, a certain degree of strength being absolutely requisite to doing the work perfectly. If the parts of the machine are below that degree of strength, the work is either ill done, or the machine is destroyed by being exerted above what it is able to bear.

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* Quere. Could this invention be of any service at sea?

Before quitting a subject deservedly of high national importance, it will not perhaps be deemed improper to call the attention of the public to the modest merits of a man, whose labours have been, in so remarkable a degree, useful to society, without any material advantage either to himself or his family. The following statement will set the advantages derived from the use of his machines in a clear point of view.

It is computed, by those who have paid every possible attention to the subject, that, in Britain, about seven millions, five hundred thousand acres are annually employed in raising grain, the produce of which, if averaged at three quarters per acre, amounts to twenty-two millions, five hundred thousand quarters; and, as it is admitted that the surplus quantity gained by the use of thrashing machines is, at least, a twentieth part more than when the flail is used, it will appear that one million, one hundred and twelve thousand five hundred quarters would be saved annually, were the whole of the grain in the kingdom thrashed in that way, the value of which, if only calculated at 32*s.* per quarter, is - - - £.1,781,250

To which add savings of expense at 1*s.* per quarter, upon 22,500,000 quarters - - 1,125,000

Making, in all, the enormous sum of £.2,906,250 sterling, a fact almost incredible to any but those who have turned their attention to the subject, and are well acquainted with the great difference between the thrashing machine and the flail. Had it been intended to swell this calculation, it might, without any colouring, have been greatly increased, as the additional quantity gained by the use of these machines may safely be stated at one half more than is here set down; and the savings in point of labour, especially when wind, water, or steam, are employed, is greatly more than one shilling per boll.

Upon the feelings of a great and generous nation, ever ready to patronize and reward genius, it is hoped the history now given of Mr. Mickle's invention will not be lost, and that he will still have the satisfaction of knowing that his countrymen are by no means insensible of the advantages derived from his labours. Should any measure of remuneration be adopted, it will perhaps give the promoters an additional interest in its success, when they learn that this respectable character, though in the 86th year of his age, is in full possession of his faculties, and likely to live many years.

Fanners.—Many years ago, the only mode of winnowing the grain consisted in letting it fall slowly from the baskets at the door: by that operation the chaff was blown backwards, leaving the clean grain within the threshold. To Mr. Mickle's family the public are indebted for this machine, as also for the introduction of barley mills into Scotland. The present Mr. Mickle is the only surviving son of James Mickle, who went to Holland in 1710, in consequence of an agreement entered into with Fletcher of Salton, a character well known in the history of Scotland. The object of Mr. Mickle's mission was to learn the art of making pot barley, and introducing barley mills. He accomplished this object so perfectly as to be able, on his return, to get the first fanners made which were seen in Britain: these were in use only a few years ago, at Salton barley mill. The introduction of the barley mill, and fanners, and the invention of the thrashing machine, have certainly laid the agricultural interest of Britain under immense obligations to that family.

The articles of agreement, between Henry Fletcher, Esq. of Salton, and James Mickle, relative to the barley mill, shall be given in the Appendix.

CHAPTER VI.

SECT. I.—ENCLOSING.

Before the beginning of the last century, enclosing was not practised in Scotland, except by a few landed proprietors, on fields immediately adjoining their respective mansion-houses. The cattle and sheep kept by the tenantry, were uniformly attended by herds, during the day, and at night either housed or folded. The infield, or home land, was constantly cropped with different kinds of grain, and no land suffered to remain in grass beside the outfield and meadow, the former of which, after being partially ploughed, and bearing a few corn crops, was suffered to seed itself, and return to grass in a most imperfect condition.

That such was the state of Scottish husbandry at the beginning of the eighteenth century, is confirmed both by traditionary and written history. About the year 1720, the first enclosures by farmers were executed on the estate of Ormiston, under the auspices of the celebrated John Cockburn, whose memory will long be respected by Scottish agriculturists; but, though the practice was imitated by some, more than forty years elapsed before it became general. About 1745, the barony of Byres was let, by the late Earl of Hopeton, under improving leases, and, at this time, it is the most regularly enclosed estate in the county. Since the middle of the century, the practice has extended rapidly, and there are few arable farms in the lower districts, which are not, at least, partially enclosed. Even the land upon the coast, which continued longer than the interior in an open field state, has lately received this improvement to a considerable extent.

It would be saying too much however to affirm that fences have always in this county been constructed on right principles, or preserved afterwards with sufficient care; in fact, the very reverse has been frequently the case, and it is not difficult to discover the cause.

East Lothian, generally speaking, may be regarded rather as a corn district, than one either naturally or artificially calculated for rearing or feeding cattle or sheep. To the mere corn farmer, enclosures are seldom attended with much advantage, sometimes with positive loss; one so circumstanced is not therefore stimulated by his interest to pay such attention to his fences, as a person employed much in grazing. It is doubtful, indeed, in many cases, whether, where corn is the great object, the advantages of enclosing be equal to the expense, especially taking into account the waste of ground which is a concomitant of the practice. A tenant, who holds on no longer a tenure than a lease of 21 years, cannot be reimbursed for the expense of erecting fences, and therefore pays little attention to an improvement which can at best yield him but little benefit. Obliged by his lease to enclose, he accounts it a burden, from which the landlord may ultimately derive advantage, but from which he can expect none himself. He therefore makes his fences in the easiest manner possible, and pays little attention to them afterwards; at his departure, he may be obliged to pay for the deficiencies a sum of money, which, however large, is seldom sufficient to put the fences in the condition specified in the original agreement.

The Earl of Hopeton judged very wisely, when he let the barony of Byres. The leases were for twenty-one years, renewable twice, on paying a fine and having the enclosures in a certain state, when the renewal was required. By this mode, interest and duty became so connected, that the former was a sufficient motive for the performance of the latter, whether enclosures were or were not beneficial to the system of husbandry pursued.

Were we to give an opinion upon the subject, it would be, that enclosures, where necessary, should be executed by the proprietor, who has a permanent interest in their success, and ultimately reaps all the benefit. The tenant's capital should be reserved entirely for the cultivation and improvement of the soil; if it be diverted to other purposes, and laid out in works which, at best, yield but a distant profit, he is rendered so much the less able to accomplish what properly belongs to him. If landlords choose, however, to devolve this work upon their tenants, the plan of the Earl of Hopeton particularly deserves their attention, as best calculated to secure the end which they have in view. In short, if it be desired to have land substantially enclosed, it must either be done at the proprietor's expense, or a fair prospect of remuneration held out to the tenant. When ground is once enclosed in a proper manner, landlords should take care that the fences are not suffered to fall into decay; it is not sufficient that an outgoing tenant pay a sum of money, in lieu of repairs, which may never perhaps be properly executed.

The fences, in this county, are either stone walls or hedges; both which comprehend various kinds, and are executed on different plans, according to circumstances.

The first class comprehends,

1. Walls built of stone and lime.
2. Walls built dry in the heart, and lipped with lime.

3. Walls entirely dry, and cased with stone and lime, or with sod.

4. Dry dykes in the Galloway style.

The first of these fences is by far the most durable, but, as the expense of building in this manner is great, it can rarely be attempted, except for enclosing gardens or gentlemen's parks. The Galloway dyke is likewise not much used. The second kind is that most generally adopted at present, for field enclosures; many walls have been lately erected in this manner. The third sort was formerly in most common use. These walls will last a considerable time, provided care be taken to provide good materials, give them a solid foundation, and to secure them by a substantial coping. If either of these be neglected, the wall soon gets into gaps, and when part of a dry wall falls, it is likely, in a short time, to be generally in ruins. Stone fences are the best, if not the only kind, which can properly be employed in the hilly or Lammermuir district, both because they are fittest for confining sheep, and because hedges would not thrive there, neither soil nor climate being favourable.

Hedges in this county are generally made of white thorn, which certainly forms the cheapest and most durable fence, of this kind, where soil and other circumstances are favourable. This plant, however, will not flourish in bad soil, in an exposed situation, where the bottom is wet, or where the ground is suffered to overrun with weeds.

Beech hedges have been planted to a considerable extent in the upland district, on the estate of the Marquis of Tweeddale, and on the estate of Coalstown. These hedges are found, when properly kept, to make handsome fences. Birch hedges too were tried by the late Mr. Buchan of Letham, and grew remarkably fast, on scarcely any thing else than a cold, bare till; the experiment indeed was not completely successful, in consequence of the main stems not having been cut over early enough, but there is little reason to doubt that such hedges will do well if cut over, when about four feet high, and carefully plashed. The beech and birch have this in their favour, that they will grow in very poor soil, and in very exposed situations; both will flourish highly where the thorn cannot live. Having no prickles however, they make but an indifferent fence, though a good shelter.

The late Sir George Suttie of Balgone introduced what he called a stone paling, which is a composition of the wall and hedge. The hedge and ditch are finished in the usual manner, and then the embankment formed behind the thorns is flattened and levelled on the top; on this, a wall is built from two feet to three feet and a half high. This forms an excellent fence, as the wall both secures the field and protects the young thorns. The principal caution necessary to be observed, is neither to build the wall too near the thorns, lest the loose earth give way, nor too far back, from the face of the ditch, lest it affords encouragement to the cattle to scramble over.

SECT. II.—GATES.

A circumstance, which has been already noticed as contributing to the neglect of enclosing, may be the cause of a similar inattention with regard to gates. Pasturing enters no further into the East Lothian husbandry, than it is subservient to tillage; if the entrance into the field, therefore, be closed, so as to exclude intruders, very little attention is paid to the manner in which this is done. The gates commonly in use are formed of two perpendicular posts, with grooves or staples, through which sliding bars pass, that may be let in and taken out at pleasure. Entire gates, turning upon hinges, and fastened with a padlock, are likewise in use. These entire gates, however, unless they are hung with great care, are apt to produce such a strain upon the hinges, as, in a short time, either pulls down the posts or pillars on which they are fastened, or causes the gates to be broken. The hanging of gates is a matter of greater nicety than is generally imagined.

Gates are sometimes constructed of two parts, hung on each side, and meeting and fastening in the middle. These are certainly preferable to the other, and, though more expensive at first, must, from their greater last, be cheaper in the end.

CHAP. VII.

ARABLE LAND.

SECT. I.—TILLAGE.

THE arable land in East Lothian, independent of what is contained in the hilly district commonly called Lammermuir, may amount to 120,000 acres, Scotch measure; about one-fourth part of this, or 30,000 acres, may be reckoned moorish soil, and only occasionally cultivated by the plough. Of all the operations connected with agriculture, none is more important, or more indispensable than proper tillage. In this respect, perhaps no district in the kingdom can boast a superiority over the county under consideration. A great part of the ploughmen are very expert, and feel a pride in doing their work neatly. The operation is uniformly performed by two horses yoked abreast, and the plough is held and driven by the same person. Two-horse ploughs were introduced about the year 1772, but were not in general use till about 1780; this implement, and the thrashing machine, may be reckoned the two most important improvements which have taken place for a century.

The depth of furrow, taken on ordinary soils, is from six to seven inches, according to the deepness of the soil or the nature of the operations which are to follow. Good farmers, however, study to vary the depth of the furrow, according to circumstances. For example, the first furrow for summer fallow, and drilled beans, is given deeper than usual; a cross furrow is generally taken as deep as the strength of the horses can accomplish, while the seed furrow is in every case lighter than any of these.

Seventy years ago, nearly all the ridges in the county were of a serpentine form, very broad and much elevated, or gathered in the middle; in some few instances, they still remain in that state, and, to an attentive observer, furnish sufficient evidence of the loss and inconvenience sustained when the whole county was laid out in that manner. The serpentine form, upon very flat fields, by giving the water a much longer course, before it can get away, lessens the fall so much as to prevent part of it from getting off at all; thus many fields, which have been laid dry by straighting the ridges, were formerly wet, and comparatively unproductive. Add to which, that the frequent gatherings, by laying the greatest part of the best soil upon the middle, left the sides very thin, and the furrows, in many cases, entirely bare. These inconveniences have been, in a great measure, removed by straighting, levelling, and reducing the ridges to a proper breadth; many fields which, in their former state, were laboured with difficulty and very unproductive, have had their value greatly encreased; this however, has not been universally the case, considerable loss has been sustained, in some instances, by straighting; in these instances, however, the mischief has evidently arisen from carelessness or want of judgment. One material benefit arising from the operation, consists in dividing the good soil as equally as possible over the whole field, which can only be done by frequently cleaving or ploughing and cross-splitting down the old ridges, and a great deal of cross-harrowing.

These operations should be repeated till the field is rendered as smooth and level as possible, before the new ridges are marked off, and in almost every instance where it is practised, the attempt has been successful; but, in some instances where the operations were executed in a slovenly and careless manner, the loss has been considerable. Indeed, where attention is not paid to level and divide the soil, the consequence is, that many straight ridges are intersected with the then bare soil that formerly occupied the sides and furrow of the serpentine ones, which, of course, causes unequal crops to be produced.

The breadth of ridges is for the most part 18 feet, though in some cases 24, and in a few farms they are only nine. These narrow ridges have been but lately introduced upon thin cold lands. To appearance they answer well, but the practice is not upon the encrease, though it is obvious that no mode can be better calculated to divide the good soil equally, giving the crown, sides, and furrow an equal share of it, especially where the practice of *crown* and *furrow* ploughing is used.

The practice of crown and furrow ploughing, it is proper to state, is by no means approved of by some of the best farmers. It is considered as laying the land in so wet a state in the winter, as to derive little advantage from frost; it also prevents ploughing early in the spring, and, though it no doubt distributes the soil more equally, yet upon the whole the 18 feet ridges seem to be preferable.

The direction of the ridges, owing to the irregularity of the surface, (the land leaning to every point of the compass,) is exceedingly various. As the principal hills, of which the county consists, run in a direction from

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west to east, the lands have a lean either to the south or north, and the ridges accordingly are, upon the greatest part of them, from north to south, a direction that gives both sides of the ridge nearly an equal share of light and heat during the summer; it seems however, to have one inconvenience, which in particular years is considerable; the high gales with which this county is visited from the end of June till the equinox, are generally from the west and south-west, and as they not unfrequently happen when the crops, especially of wheat, are coming into the ear, if these south and north ridges are much gathered, considerable loss is sustained by the action of the wind upon the west side of the ridge, either breaking the shew, or, if the soil is light, so loosening it at the root, as to prevent it from making any farther progress. Much loss has been sustained by these gales, in particular seasons, the greatest part upon fields with ridges pointing south and north, while these running from west to east have almost entirely escaped. In cases where the fields are very steep, (and much of the arable land in the hills and uplands is of that kind,) the ridges, in place of running directly from the highest part of the field, have a slanting direction, with only as much fall as to allow the superfluous water to run off. By this practice the labours of ploughing is not only considerably lessened, but the soil is less liable to be run or washed away during heavy rains, and, in dry summers, much more of the moisture remains in the soil, a matter of considerable importance upon dry light lands.

SECT. II.—FALLOWING.

The practice of fallowing is universal throughout the county, upon soils of all descriptions, though within the last twenty years it has been less common upon light free soils, owing to the introduction of drill crops, by which such lands, when once cleaned by a complete fallow, can be kept tolerably free from weeds, for many years. Though very ancient in England, the practice of fallowing in Scotland was only introduced during the last century, and originated in this county. Two persons of high respectability are mentioned as being the first who followed the practice, the one a proprietor, the other a farmer. The proprietor was the Right Honourable Thomas the 6th Earl of Haddington, who, it is said, set the example upon his own estate about the time above-mentioned. The farmer was Mr. John Walker in Beanston, as we are informed from respectable authority, who took the hint from some English travellers, while they spent a night at his house, and with whom he had a good deal of conversation upon the subject, so much to his satisfaction that he made an experiment upon 6 acres, the following summer, which he carried through in spite of the animadversions of his neighbours, who were divided in their opinions as to the sanity of his mind, or the stability of his circumstances. The result of the experiment gave them a better opinion of both, and the return was so abundant as to induce him to extend his next year's fallow break to twenty acres; soon after which the practice began to spread, and so early as the year 1724, fallowing upon all the deep strong soils, was common throughout the county. There can be no doubt, that the early excellence of the

East Lothian agriculture was in a great measure owing to the introduction of fallowing, which, together with the use of drill crops, have contributed to place it at the head of the Scotch counties. It has been observed, that the use of plain fallows has, upon great part of the dry lands, been partly superseded by the introduction of green crops, a system that has been attended with much benefit, and admits of being extended to the whole of the lands of that description in the county. Upon heavy lands, fallowing would be much seldomer necessary, were due attention paid to have the operation completely done, and no impure hay-seeds made use of when the fields are sown out for grass; the mischief, which has been often occasioned by the want of caution in many farmers, as to the choice of their seed, is beyond calculation. But as this falls to be treated of with more propriety, under the article *weeding*, it is unnecessary to say more upon it in this place.

When a plain fallow is meant, the first ploughing should be given as early after harvest as can be consistent with an attention to the other operations of that busy period; this is particularly necessary where the soil is strong or incumbent on a retentive bottom: very serious inconvenience is often experienced, by delaying the first ploughing of such soils till the spring, which if it happen to be wet and the land ploughed with much moisture in it, and a dry summer succeed, the furrow acquires a degree of cohesion, which is the cause of much hard labour afterwards. This is an evil that would be in a great measure avoided, were such lands ploughed before winter; the purpose of cleaning, especially where there is much couch-grass, would be more completely effected early in this season, and the whole of the subsequent labour lessened. Upon light soils, the first ploughings may, with more safety, be delayed till the spring, as the weeds upon such lands are, for the most part, annuals, which cannot be destroyed till the season of vegetation arrives; some benefit may no doubt be derived, from the land being turned up and the seeds exposed, by which a part of them may be picked up by birds, but this advantage is certainly less than is imagined, and is, in many instances, more than counterbalanced by the wasting of the soil during winter, which must inevitably happen where the lands have much declivity. The subsequent ploughings of light soils are, with judicious farmers, regulated entirely by the weather, it being reckoned a loss of labour to stir the soil, till the seeds, upon or near the surface, have vegetated. The crop commonly sown upon fallows is wheat, which, upon light and middling soils, is always dunged, but, upon the strong rich lands, is in many instances sown without dung; in cases, however, where wheat is thought too severe upon some of the inferior lands, barley, and sometimes oats, are taken as a first crop.

The harrowing operation upon clays and deep lands is for the most part done with brakes or large harrows, which is found to answer the double purpose of reducing the soil, and tearing out the root weeds; upon light soils the common harrow answers every purpose.

A mode of fallowing has lately been introduced in this county, which is in great measure new, and admits of being successfully practised upon all lands of the same description throughout the kingdom; it is termed a two year's fallow, and is confined chiefly to heath grounds.

In cases where the heath is long, it is commonly burnt, an operation by which two important objects are obtained, the ashes of the heath act as a slight manure, and the furrow is turned over with much more neatness and accuracy, than it would otherwise be, and in that way the sod is sooner and more completely rotted.

Where such lands are tolerably dry, and have an open bottom, the first ploughing is generally made in a direction opposite to that in which it is intended the ridges shall afterwards run; in other words, the land is cross-ploughed; but in cases where the land is swampy, the first ploughing is always given in such a direction as to allow the water to run off freely, in that state it is allowed to remain a full year, at the end of which, if the work has been properly done, the sod is completely rotted, and can then be reduced with very little labour. Fallows of this kind, are seldom attempted, but in cases where it is intended to make use of lime, which, under such circumstances, never fails to have the most surprizing effects; the crop commonly sown is oats, and the increase, in favourable seasons, from ten to twelve bolls per acre, upon lands that would not, before fallowing and the application of lime, have been reckoned worth one shilling per acre. The subsequent treatment of such lands, will be noticed at some length, when the properties of lime come to be spoken of.

SECT. III.—ROTATION OF CROPS.

In a district that contains such a variety of soil, where some practices are in a great measure new, and where at least a part of the farmers are averse to an alteration of the system they have so long pursued, it is not to be expected, the rotation, even upon lands of the same quality can be uniform. The following, however, is the mode of cropping followed by the best farmers in the different parts of the county, and though several exceptions will be met with, it will be found to apply generally.

I. ROTATION UPON THE COAST LANDS.

DRY GRAVELLY LOAMS.

These lands are, by some farmers, kept under a four-course shift, as follows:

1. Turnips, sometimes with, sometimes without, dung.
2. Barley or spring wheat, with grass seeds.
3d. Clover, which is generally cut for hay, or given green to farm-stock in the house, and sometimes pastured with ewes and lambs.
4. Wheat, or oats, if wheat was taken before, dunged upon the clover ley.

After this the rotation again returns; upon this description of land, the turnips are for the most part consumed upon the ground with sheep confined, by flakes, a mode by which the soil is greatly enriched.—Of late years, however, an improvement has been made in the way of using turnips, upon these lands, that deserves attention. In place of eating the whole upon the field where they grow, a certain proportion is drawn, and either carried home and used for cattle in the house, or given to sheep upon an adjoining stubble or grass field; by this mode a double quantity of land is manured, and, if the winter is wet, the turnip-field is less injured than it would otherwise be, if the whole were consumed where they grow. The quantity drawn and carried off in this manner is from a half to a third of the crop; in some cases five or six drills are taken out, and the same number left. Taking out alternate drills is certainly a preferable mode, and is now pretty generally practised.

II. ROTATION, UPON DEEPER LOAMS WITH A DRY BOTTOM.

1. Turnips.
2. Barley, or spring wheat.
3. Pasture.
4. Oats.
5. Beans drilled and horse-hoed.
6. Wheat.

This rotation requires land of the best quality.—Dung is only once applied during the rotation, and is uniformly given to the turnips.

III. HEAVY LOAMS ON A RETENTIVE BOTTOM.

1. Fallow with dung.
2. Wheat.
3. Beans drilled and horse-hoed.
4. Barley.
5. Clover, which is dunged on the stubble.
6. Oats.
7. Beans drilled.
8. Wheat.

In this rotation the land is dunged twice, though not very heavily, a practice that is found to be very beneficial. Beans and wheat alternately are sometimes taken on such soils, but much manure is necessary, where a system of this kind is executed.

Another rotation, on this species of soil is:

1. Fallow dunged.
2. Wheat with grass-seeds.
3. Pasture, eaten by sheep.
4. Oats.
5. Beans, or a mixture of beans and pease drilled.
6. Wheat or oats.

The above is a rotation of six, with only one manuring, but the quantity applied is generally greater than in the foregoing rotation, and the pasture being the second after the fallow, and fed off with sheep, compensates in some degree for the want of dung. A rotation is sometimes fallowed on the best clays, such as is marked in first class of No. III.

IV. ROTATION ON THIN CLAYS.

1. Fallow without dung.
2. Oats with grass seeds, or if the fallow was dunged, wheat.
3. Pasture.
4. Oats.
5. Beans dunged.
6. Wheat.

After which the fallow is repeated, and the rotation returns.

Upon the poorest of these clays, the rotation, commonly followed, is,

1. Fallow dunged.
2. Barley, sometimes oats, with grass-seeds.
3. Clover.
4. Oats.

On the coast, a considerable portion of what was formerly link grounds, covered with bents and other herbage of small value, is now brought under the plough, and profitably employed in raising useful crops. That description of soil is, for the most part, under a rotation of four, as follows:

V.

1. Turnips, with dung or sea ware.
2. Rye or barley with grass-seeds.
3. Clover cut for hay, or pastured.
4. Oats manure on the clover ley.

The great bar to the improvement of these sandy soils, arises from the risk to which they are exposed of being blown by high winds, a circumstance which frequently happens, and by which the crops both of turnips and barley, are often greatly injured, sometimes entirely lost. A remedy has lately been suggested, and put in practice, for that evil which bids fair to be attended with benefit. The season, during which the greatest mischief happens from blowing, is the latter part of the spring and beginning of summer, and the winds by which the blowing is occasioned, are generally from the west and south: to prevent the mischief, to barley and turnip crops, it is proposed to keep barley out of the rotation, and substitute rye in its place, that the ridges of the field shall run in a direction from north to south, and that the three westernmost ridges shall be sown with rye before winter, leaving the three ridges immediately adjoining for turnips, sowing again the next three ridges with rye, and so on, having alternately three ridges of each over the whole field. Where this is practised, the rye, by the time the turnips are sown, has made considerable progress, and from the circumstance of the sides of the ridges being opposed to the wind, breaks its force so much as to prevent it from hurting the turnips. Perhaps alternate ridges of rye and turnips would answer the purpose of shelter more completely, but as some loss would arise from treading the rye in the working of the turnips, and as the latter, if the rye grew to any great height would suffer from the want of a due proportion of light and air, two or three ridges appears to be the proper breadth.

The above is the rotation generally followed, on the different soils in the middle districts, and coast lands. Upon the deep and well sheltered soils, in the uplands, it is not materially different, except that winter wheat is seldom sown, and spring wheat not at all; for the generality of that district however, which is a dry gravelly loam, the rotation principally followed is one of four shifts.

VI.

1. Turnips with dung.
2. Barley or oats.
3. Clover.
4. Oats.

Upon heath lands broken up by a two years fallow, the rotation is generally different from any of the above. Where the soil of these lands is however, deep, the rotation No. VI. is followed; but when the situation is elevated and the soil thin, as is often the case, the most common rotation is as under:

VII.

1. Oats.
2. Clover.
3. Pasture.

In this last the land is permitted to remain for a number of years. In some cases the system is different; the second year of the fallow, and after the lime is wrought in, turnips are sown and eaten off with sheep, oats are sown in the spring with grass, and the land

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afterwards pastured. The last is unquestionably the most profitable rotation, as, along with the value of the turnip crop, which in some cases may be considerable, the land is manured, and has its parts consolidated by the treading of the sheep; this last is a circumstance of great importance to soils of a loose texture as these frequently are. It is imagined by some good farmers, that the rotation upon these new broken uplands, may be lengthened by taking a second crop of oats after the clover, and again sowing down with grass-seeds. Perhaps upon some of the best of these lands, that may be done with advantage; but, if the soil be thin, and contain few useful principles, the experiment is dangerous, as there is a risk of rendering it useless for the future.

The above will be found pretty nearly the general rotation of the county, though there are not wanting several exceptions, which it would be impossible to reduce to any accurate classification.

The received opinion of alternate green and white crops being the best system of husbandry, is now admitted by every good farmer, though there are instances, some of them successful ones, of a different practice; thus, on some of the dry loams, two white crops are sometimes taken in succession, with profit to the tenant, and seemingly without detriment to the soil, and that too in cases where no turnips are raised; again the system of wheat and bean alternately is pursued upon some of the strong lands, with profit also, and indeed upon some of the thin clays, and that for a length of time, and with a degree of success that nothing short of ocular evidence could make any one believe. It is to be observed however, that in all the successful deviations from what is now held to be the best system of alternate white and green crops upon the dry lands, the success has been owing to circumstances that will not admit a long continuance of the practice, the recent application of lime, and the extraordinary quantity of manure thereby produced, enabling the tenant to force a crop in spite of innumerable weeds of all descriptions; but as every year adds to the stock of weeds, and as after a few years the crops of corn will become less productive, and of course the quantity of manure smaller, the weeds will then, by having nothing to keep them down, shew themselves, and by getting the better of the crop, occupy the first place, and monopolize the nourishment destined for the grain.

Upon the deep strong soils where the profitable system of wheat and beans alternately has been practised the instances are upon lands formerly ill farmed, where the soil, though of a strong staple, has not been opened up or laboured in such a manner, as to call forth its latent powers, such soils even without lime, by being completely opened up, have yielded a succession of valuable crops; but where lime has been applied, either in the first instance, or after such succession, the effects have been very great; and as lands of that description, from their depth, and the quantity of valuable principles they contain, are not easily exhausted, they bear a system of exhausting crops longer than any other soil, and that period, as has been noticed of the dry loams, is considerably lengthened by the great quantity of manure thrown up by the application of lime; but as there is a period, beyond which such a system cannot be carried without exhausting the soil, and as all lands to which lime has been applied in any considerable quantity, are, after a course of severe cropping, much reduced, a different mode of cropping will ultimately be found to promote the interest of all concerned, keeping the dry loams longer in pasture than is commonly done, especially such as are light or gravelly, will be found useful, as during the time they are in grass, the staple of the soil is thickened by the annual decay of that part of the herbage that is not consumed by the stock, and when broke up, the whole sod, when properly reduced, is converted into vegetable earth. Upon the clays, a more frequent use of clover, together with the introduction of oats, would be found, in the long run, equally profitable for the tenant, and much better for the soil; upon the thin clays, which, from their containing a smaller proportion of useful principles, are sooner exhausted, the introduction of oats and clover more frequently into the rotation is still more necessary than upon the strong clays.

SECT. IV.—CROPS COMMONLY CULTIVATED.

The crops commonly cultivated in East Lothian are,

1. Wheat.
2. Barley.
3. Oats.
4. Beans.
5. Pease.
6. Rye.
7. Tares.
8. Potatoes.
9. Yams.
10. Turnips.
11. Ruta Baga.
12. Flax.

The crops not commonly cultivated are,

1. Cabbages.
2. Carrots.
3. Rape.
4. Woad.
5. Lucern.

Of the crops commonly cultivated, wheat, as being by far the most valuable, and forming at present almost the only article used for bread, deserves the first notice. The cultivation of it is chiefly confined to the coast and midland districts, very little being raised in the uplands, unless upon the richest and most sheltered lands. It is difficult to ascertain the quantity usually raised, but it is undoubtedly very considerable. All the varieties of this grain are cultivated; of late years, however, red wheat, owing to its not fetching an equal price, has been almost laid aside.

The various kinds of wheat at present sown, may be referred to two classes: 1st. The thin chaffed, 2d. The thick chaffed; though no doubt each of these may be subdivided into endless varieties. In former years, wheats of the second class were most generally esteemed, because they yielded a fuller crop than those of the first, but being more subject to mildew and blight, they are now almost laid aside; on the other hand, the thin chaffed wheats are almost universally adopted, because experience has proved them to be more hardy, and less liable to these destructive disorders.

The varieties now in use were produced from some principal stalks, selected by two intelligent farmers in the lower district; to these persons the country is greatly indebted for valuable seed, which is cultivated with much advantage, not only in this county but elsewhere. It is plain however, that, unless fresh selections are made in the same manner from time to time, the quality of the seed must greatly degenerate; much of it is already mixed with other sorts, an inconvenience hardly to be avoided, on any farm where different kinds are sown. There seems to be no remedy for this evil, but a fresh selection, and no chance to prevent the recurrence of it, but by occasionally repeating the process.

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The thick chaffed wheat formerly sown, and generally called velvet wheat, was selected by an intelligent farmer in the western part of the county, (Mr. Mackay at Ormiston,) and yielded a good return in dry seasons, but in wet ones, suffered severely from mildew. In 1799, the loss sustained by those who sowed this wheat was immense; even in 1801, some farmers lost greatly in consequence of foggy weather coming on while the grain was filling, and since that year it has gradually disappeared. A variety of red wheat, originally of an excellent kind, was selected by the above gentleman about ten years ago, but being liable to the same defect which attended the velvet or woolly eared white, it is now also given up. A small kind, commonly called Polish wheat, was pretty common in the county eight or nine years ago, and yielded a greater quantity of flour than any other then cultivated. Several attempts have been made likewise, to introduce wheats from England, but rarely with success. Indeed, the thin chaffed varieties now used, which were produced from grain naturalized in the county, promise to maintain their ground, provided proper care be paid to the making of frequent selections.

The extent of ground now usually occupied with wheat, is so great, as to render every thing connected with the cultivation of that grain an object of the highest importance. To procure good and clean seed, and to prepare the land in the best manner for its reception, are matters of great and of equal magnitude. In four cases out of five, it is to the wheat that the tenant looks for the means of paying his rent, every deficiency therefore, in any part of the process necessary for securing a good crop of this grain, must be attended with a proportionable diminution of the riches of those who are concerned in the culture of the district.

1st. *Preparation for Wheat.*—Many years ago the principal preparation for wheat was by a fallow, upon which, if the season was favourable, it was sown towards the end of August or beginning of September; soon afterwards, the practice of sowing it after pease became common, but since the introduction of potatoes, turnips, and other drill crops, the most of which are a good preparation for wheat, it is upon good lands sown after

1. Summer fallow.
2. Beans or pease.
3. Potatoes.
4. Clover ley.
5. Turnips.

1. *Wheat upon Summer Fallow.*—It has been mentioned that at the time when fallowing was the sole preparation for wheat, it was sown very early, generally about the end of August, or beginning of September, in that way it had made considerable progress before the commencement of the winter, so much so, that it was imagined the ear being formed early in the season, suffered by the frosts so common in this latitude at an advanced period of the spring; these early sown crops were however in general more bulky than such as were put into the ground at a later period, but in many instances did not yield a produce proportioned to that bulk; that circumstance led most of the farmers to postpone the sowing till the beginning of October upon the strong heavy lands, and the end of that month upon the light dry soils; the change however has not been for the better, as in some unfortunate years, bad weather has prevented the sowing entirely, and in many cases, where the seed has been very well put in about the end of October or beginning of November, an early winter

with much naked frost, setting in soon after the braid, and before the plants had sent out a sufficient number of roots to secure a proper establishment, has either thrown them out of the ground entirely, or left the soil so open as to expose the few roots they had, to every severity of the weather. In that way many of the young plants are killed during the winter, and such as survive till the spring, have so little connection with the soil, owing to its openness, that they are unable either to draw the necessary nourishment from the few roots they have, or to send out new ones in quest of more; in that state they are liable to be blown out of the ground, by even a moderate wind: and accordingly in the spring, after much black frost, if it has gone off without rain, and a high wind ensues, many of the plants are blown entirely out of the soil, and such as remain, even if rolling is afterwards had recourse to, continue long in a doubtful state, and have their stamina so much injured, that their produce is but sickly and imperfect. Indeed so great is the mischief thus occasioned, that in many cases it is found necessary to plough down the crop in the spring, and sow barley in its place, a misfortune seldom known to happen where wheat is sown early upon any description of soil; and though such early wheats do not always yield in proportion to their bulk, they seldom fail entirely, and will in general, be found a more certain as well as a more productive crop than such as are later. Where fallows have been well worked, and the opportunity of sowing at a reasonable time, to enable the wheat to establish itself before the winter sets in, it will always be found safer to trust the sowing of it early, which, if it is favourable, will ensure a better crop, and if unfavourable, an opportunity is afforded of sowing barley, which if the fallow has been well worked, seldom fails to be a valuable crop, in all cases where lime has been applied to the fallow, unless it has been incorporated with the soil at a period sufficiently early to insure a complete operation before the wheat is put in, the sowing should be delayed till the spring, for this obvious reason, that if the lime has been applied in a hot state, (which it certainly ought to be,) and at a late period of the season, and immediately ploughed in, the absorption of moisture will so expand its parts, as to divide and heave up the soil like a mole-hill; this is what is generally termed fermentation, which undoubtedly is an abuse of language, the effect as far as regards the division or swelling of the soil being purely mechanical, and owing entirely to the expansion of the calcareous earth after it is completely saturated with moisture, that effect, added to the winter's frost, renders it a very dangerous experiment to sow wheat upon such fallows before winter; and so well convinced are most of the East Lothian farmers of the truth of this, that none who take experience and observation for their guide, will make the attempt. Spring wheat, however, is found to answer well upon such fallows, and if sown any time before the 20th of March upon dry lands, is nearly as early as that sown before winter upon soils of the same description, where no lime is applied.

Wheat after Beans, Pease, or Tares.—When wheat is sown after either of these crops, the land in a few instances is dunged to them, but, in a great majority of cases, the dung is laid upon the bean stubble, and ploughed in for the wheat, which is sown with one furrow. Owing to the lateness of the bean crops in this country, the land can never be prepared for wheat at an early period; from the end of September to the middle of October, even in the best years, is the soonest that it can be got in, and in unfavourable seasons considerably later; little inconvenience however arises from that circumstance, as it is found that wheat sown after either of these crops, is not liable to be thrown out by the winter frosts, and suffers much less from late sowing than it does upon well wrought fallows. Upon pease and bean lands however, as well as upon fallows, if the season is very late, much advantage will arise from delaying the sowing till the spring, especially if the soil is good and other circumstances favourable.

Wheat after Potatoes.—The practice of sowing wheat after potatoes is confined chiefly to the neighbourhood of the towns of Haddington, Dunbar, and North Berwick, and the larger villages of Prestonpans, Tranent, &c. &c. Experience proves it to be a most beneficial preparation for wheat, which is generally a good crop; and if the potatoes have been planted or taken up with the spade, and the necessary hoeings given during the summer, the land will be found in a tolerably clean state after the wheat. Those who are in the habit of planting potatoes as a preparation for wheat, speak highly of the advantages arising from the practice, the wheat, with few exceptions, always yielding well, both as to the number of bolls and the quantity of flour.

Wheat after Clover Ley.—Wheat after clover ley is sown only in particular seasons; when the summer and autumn have been so wet as to prevent the fallows from being properly cleaned and prepared for the reception of the wheat. It is by no means a favourite rotation with the East Lothian farmers, and as far as observation goes, their dislike is well founded, the crop is seldom a good one, and the land is generally left in a very dirty state. Two different modes are followed in sowing wheat after clover; the first is called *rag fallow*, and consists in ploughing the clover down, immediately after the first cutting; two furrows are generally given before the dung is applied, which is ploughed in with the third, and the wheat sown immediately after. In the other mode the dung is laid upon the ley, ploughed in, and the wheat sown with one furrow; this last however admits of being practised only upon leys of one year old, where the soil is soft, and the furrow so tender as to admit of being reduced completely by harrowing. In speaking of a practice that has been but partially tried, it would be wrong to hazard an opinion, especially as it is so universal in many of the English counties, and mentioned in terms of high approbation by many of the best farmers. To whatever cause it may be owing, certain it is, that no two things can be more opposite than the accounts given of it in England and in East Lothian, and though the practice is pretty general upon the best lands in a neighbouring county, (Mid Lothian,) it does not appear that the success is much greater; accordingly many farmers in that district have laid it aside. Whatever the temptation with English farmers may be, there does not appear to be any sufficient inducement to it north of the Tweed. An oat crop after clover is always a certain and a valuable one without any manure, with the additional advantage of the land being in better order, and the dung reserved for other purposes.

Wheat after Turnips.—Owing to circumstances that will be readily understood, wheat can never be sown after turnips till the spring, when, if the season is good, it is, upon the warm lands, sown from the beginning of February till nearly the end of March; this, however, is only attempted upon the coast lands, in many parts of the midland district the crop would not ripen if it were sown so late.

Seed.—Owing partly to a want of attention in keeping the different kinds of wheat separate, and partly to the strong tendency nature has to variety, the wheats in this county, as already said, for the most part soon become mixed, and in that way unfit for seed; not but there are instances, where the best kinds are preserved unmixed for many years, as upon several farms, where due pains have been taken, nearly the whole produce is annually sold for seed. Even where the seed is preserved pure, however, it may be useful to change every two or three years from one kind of soil to another; thus the wheat from the coast lands is found to ripen sooner, and produce a better crop in the midlands, than the produce of its own soil; even upon farms adjoining, a change from the one to the other is found useful.

Steeping or Pickling.—There are some instances in this county of wheat being sown without any steeping whatever, for a series of years, and seemingly without any loss or disadvantage, the crops being good and the grain clean; but, in by far the greater number of cases, pickling is had recourse to, and, when properly performed, very effectually answers the purpose of preventing smut. Two different kinds of pickle are in use, both of which are found good, viz. 1. *Salt Pickle*, 2. *Urine Pickle*.

Salt Pickle.—The salt pickle is prepared in two different ways; it is either made with pure fresh water, with a quantity of salt dissolved in it, sufficient to make it float an egg, or it is made with sea water, to which a quantity of salt is added sufficient to bring it to the same strength; the effect of both is the same, and the sole difference consists in the saving of a small quantity of salt. When the pickle is made of the strength mentioned, the wheat is put into it, in the quantity of a bushel or more at once, and well stirred for some time with a stick, the light or diseased grains are thus raised to the top and skimmed off; the wheat is then poured into a sieve placed upon the top of a large tub, into which the pickle descends, and into which a fresh quantity of wheat is put, continuing to treat it in the same manner, till the whole quantity intended to be used is pickled. The seed, thus prepared, is spread upon the barn-floor, and a quantity of new-slaked lime, sufficient to absorb the moisture, sifted upon it; the whole is afterwards carefully turned over, and intimately mixed with a shovel; it is then fit for sowing.

Urine Pickle.—The urine pickle is a favourite with many of the East Lothian farmers, and is applied in the following manner; the seed is either immersed entirely in the urine, and afterwards sprinkled with lime, or it is spread very thin upon the floor, and sprinkled with the urine, which for the most part is stale, the quantity being calculated, as near as may be, to moisten the grain, which after sprinkling is carefully turned over, that the whole may be equally wetted with it. Quick lime is then sifted upon it, in the same manner as with the salt pickle, after which the seed is put into the earth as quickly as possible.

In regard to these preparations, whether salt pickle or urine, it may be remarked, that as far as observation, aided by the testimony of the best farmers, can be relied on, they have in every instance, where properly applied, effectually prevented the crop from suffering by smut. But though the purpose of preventing smut has been completely answered by this process, and the proofs of

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success are too numerous to admit dispute, yet it deserves to be noticed, that in certain circumstances dangerous consequences may follow the use of the urine pickle, if the seed be not sown immediately after the operation; it may also be observed, that this pickle requires to be managed with so much the greater care, as there is naturally much risk of loss, but no established standard, by which the degree of staleness requisite in the urine may be ascertained,. It must be admitted, that when it is sufficiently stale, and the grain fully moistened with it, every possibility of smut is obviated, but then the grain itself may have its vegetative powers destroyed; the only known means for preventing this is speedy sowing; cautious farmers, accordingly, rarely pickle more than a few bolls at a time, or employ a number of sowers to dispose of it as quickly as possible. When the operation is conducted with such attention, it may be safely affirmed, that no danger is to be apprehended; where less care, however, is bestowed, the risk is by no means trifling, and fields have been seen, where not less than three-fourths of the seed appeared to have been destroyed.

Before leaving this subject, it is impossible to avoid remarking the obstinate prejudices, which persons in some places still entertain against pickling; some do not scruple to affirm, that they have no smut, though they never practise pickling; others assert, that they have tried it with all imaginable care, and found it no security. That wheat may grow in a sound state, which has not been prepared in this manner, is granted, but it must be likewise granted, that the chances are greatly against it; on the other hand, that pickle, properly made and carefully applied, has failed to answer the end, is what no person well acquainted with the practice will believe. The direct and decided testimony of so many persons, of the highest professional knowledge and experience, places the success of the measure beyond reasonable doubt. It should always be recollected, however, that the operation may be performed with little or no advantage; if the pickle be not sufficiently strong, or the seed not completely moistened with it, the trouble, it is likely, might as well be saved. Let the process be conducted in the manner described, and with the care recommended above, and there are not a few farmers of the first character, who will stake their credit on the success.

Time of Sowing.—Wheat is sown from the end of August to the middle of March, in the midland district, and on the coast lands, as late as the beginning of April, and reaped in very good time, unless the season be unfavorable.

Culture whilst growing.—In good seasons, no culture is bestowed during the growth of wheat, unless in cases where the soil has been completely reduced by a good fallow, and battered by heavy rains soon after sowing, when it is found necessary to harrow it in the spring, in order to loosen the soil, and increase the pasture of the plants; an operation that seldom fails to have a good effect, especially if it is followed by gentle showers. In other cases, where the soil has been rendered loose and open by the winter's frost, and the safety of the plant thereby endangered, rolling has been found necessary; these operations, together with hand-weeding, comprehend the whole of the attention required for broad-cast crops of wheat. Drill crops of this grain are not much known here, at least that kind of them where hand or horse-hoeing can be introduced. For two or three years past, a few acres have been attempted in the neighbourhood of Dunbar.

Harvesting, with winter sown wheat, is somewhat earlier than for other grains, with the exception of Dutch oats. Spring wheat is later, and unless in unfavourable seasons, is cut with other grains. There appears to be some contrariety of opinion amongst the East Lothian farmers, respecting the marks of ripeness in wheat, or the degree of it that is necessary to make a perfect sample; some assert, that cutting quick is the surest way of having the grain perfect, while others are of opinion, that it should be dead ripe, in other words, that the circulation, in both straw and corn, should be over before it is cut down. Perhaps truth is to be found between these extremes, an opinion sanctioned by the practice of the best farmers, who neither cut very quick nor allow the wheat to be over ripened. Observation points out the marks of maturity necessary for wheat, and indeed for every other grain, and these marks, when properly attended to, are sanctioned by experience. As long as the circulation continues through the ear, the grain is receiving something from the earth, and ought not to be cut; whenever that is over, the sooner it is cut down the better. The first mark of the circulation being at a stand, consists in a shrinking and whitening of the straw, immediately below the ear, which gradually proceeds downwards, till it reaches the bottom, when the grain, in provincial language, is said to be *dead ripe*; in that state the straw becomes brittle, the ears are easily broken off, and the grains shake out in the handling. To that stage it ought never to be allowed to come, as the loss of grain is not only great, even under the most favourable circumstances of calm and fair weather, but the quality is materially impaired by such a long and unnecessary exposure to the action of light and heat. It is a fact, now well understood, that the nourishing and fermentable properties of all vegetable productions, whether grain or fruit, bear an exact proportion to the quantity of light and heat they have enjoyed, during their growth and ripening; the benefits derived from these continue to be felt while the circulation goes on, but as soon as it ceases, these elements begin to take away what they had formerly given; the grain loses its colour and flavour, and has every valuable quality diminished. If it be overtaken by rain in that state, the injury is infinitely greater than what happens to grain that is cut at an earlier period.

The period, at which wheat, and indeed all the white crops, ought to be cut, is when the straw begins to shrink and becomes white about half an inch below the ear; the circulation is then cut off, and all farther benefit from its standing is at end; the grain has taken every thing requisite to perfect it from the soil, and, as far as the value of the straw, whether for fodder or other purposes, is concerned, an advantage is gained by cutting it while the circulation is going on, and by that means preserving a part of the natural juices; the value of straw, like that of hay, depending upon the proportion of natural juices it contains, and the pains that have been taken to preserve these.

Thrashing.—Thrashing of wheat is performed in the same manner as for other grains, and is done at different seasons of the year, according to the views or wants of the farmer. Immediately after harvest, almost every farmer is obliged to thrash out a certain quantity of wheat, for the double purpose of supplying himself with seed, and straw for litter and covering his stacks, and as few farmers can caclulate exactly what they will need for these purposes, and all of them wish to have a little more than they may have occasion for, it happens that, in the beginning of the season, there is always a more plentiful supply of wheat than at any after period.

Before quitting the subject of thrashing wheat, it is impossible to avoid remarking, how much has been gained, in this single article, by the introduction of thrashing machines. When the value of this grain is considered, and the quantity lost in separating it from the straw by the flail, the difference between this method, and that by machines must appear immense. It is not a little surprising, that any person should adhere to the old practice, with such evidence of its inferiority.—There are still some, however, though the number is constantly diminishing, who have farms large enough to employ machines profitably, and yet continue to thrash all by the hand; a striking proof how far prejudice may shut a person's eyes against his own interest.

Produce.—The produce is, in some instances, as high as fourteen bolls per acre; that, however, is accounted a very great crop Ten bolls are commonly reaped on good lands. The average, upon the coast and best parts of the middle district, may be about eight bolls. Taking the whole county, the average will not exceed seven, and, in some very bad seasons, it is considerably less.

Manufacture of Bread.—In the towns and large villages, wheaten bread is almost the only kind now in use; even in the country parts, except in the houses of the farmer's servants, it is very generally used. A comparison of the present consumpt, with what was required forty years ago, will, in some degree, explain the high price of that particular article, and, at the same time, afford a convincing proof of the infatuation of the lower ranks, in persisting in the use of wheaten bread, notwithstanding its high price, in opposition to what is made from a mixture of oats, peas, and barley, which besides its being equally wholesome and nutritive, can be had a great deal cheaper.

Assize.—There is perhaps no town in Scotland, where a more minute attention is paid to the assize of bread, than in Haddington. This is owing to two causes: there is a regular market for wheat, once a week, and a clerk appointed to collect the total quantity produced for sale, with the price at which each parcel is sold, from which an average is struck; which average is the rule followed by the Magistrates and Justices of the Peace in fixing the assize; and so scrupulously exact are they in this respect, that all wheat not capable of being baked into wholesome bread by itself, that is, without being mixed with better grain, is kept out of the amount of sales, and the average struck only from wheat of the quality above mentioned.

For many years previous to 1800, three different kinds of bread were made and exposed to sale, viz.—*wheaten*, *household*, and *brown bread;* owing, however, to the high price of the wheaten loaf that year, the demand for that kind was so small, that the bakers found themselves under the necessity of petitioning the Justices of the Peace, for leave to bake the standard wheaten bread. The Justices appointed a Committee to consider the request, who, after mature deliberation, stated it as their opinion, that the standard wheaten bread only should be baked, and that every other kind should be prohibited. It is worthy of notice, that while this matter was under discussion, the Duke of Portland's circular letter, recommending that kind of bread, was published, which, no doubt, had due weight with the committee.

BARLEY.

This grain is not cultivated to the same extent in East Lothian that it was many years ago, the increased cultivation of wheat, beans, clover, and oats have rendered it less common upon the best lands, and in many parts of the mid and upland districts, it is nearly given up, from a conviction of its being an uncertain, and in many instances, an unprofitable crop. Different kinds are cultivated, all of which are found valuable in different situations, the principal are

1. The Scotch barley.
2. Lincolnshire ditto.
3. Thanet ditto.
4. Close short-eared barley.
5. Quadrangular ditto bear or big.

1. *Scotch Barley.*—This kind has been sown in the county, and indeed over all Scotland, from time immemorial. It admits of greater latitude as to the time of sowing, than the other kinds, (with the exception of the quadrangular barley or big) having, in some cases, been sown as late as the 12th of June, and a very good crop reaped; little of it is sown however after the middle of May, as when sown later, or even at that time, if the season is warm and moderately moist, it rushes up so fast that the straw is quite soft; in that way it is in danger of lodging from even a very slight cause, and accordingly is very often lodged, and the grain much injured. When sown early in the season, the straw is much stronger and stands up equally well as any of the English kinds; this kind is a favourite with many of

the best farmers, who prefer it, and very deservedly, to almost every other. It is also preferred by most of the brewers and distillers to the English kinds, if they have been sown once or twice in Scotland.

What is known by the name of Ware barley, is only the old Scotch, sowed upon the coast lands, and manured with *Sea weed* or *ware;* after being sown upon these lands for a year or two, it is purchased for seed, for the more inland and later parts of the county, where it is found to ripen earlier than barley, the produce of these parts. It is commonly sown in April, but in favourable years it may be ventured as late as the end of May, and a good-crop reaped.

Lincoln Barley.—This variety is so well known as to require no particular description; it requires to be sown early, and, when the weather will admit, is put into the ground before the end of March, and seldom delayed beyond the first week in April.

Thanet Barley.—This grain so nearly resembles the Scotch, as to create a suspicion of its being the same, only a little altered, from its having been carried out of the country, and sown for a number of years in a warmer climate; when sown upon rich lands early enough in the season, the show is strong, the grain round, and rather inclined to be coarse; it is however, in general, a productive crop, though on account of its colour, seldom being bright, it does not bring the best price in the market. It is chiefly sought after for the purposes of making pot barley or meal, for both of which it is well adapted, as also for malt, though from its colour and apparent coarseness, it is not so much relished by brewers and distillers. The best crop is generally got after one ploughing given before winter, which however, is very seldom practised, as the soil is thereby rendered dirty.

Close short-eared Barley.—This barley is very prolific, of a bright colour, and handsome shape; it is distinguished from the foregoing kinds, by the manner in which the grains are placed upon the ear, which, in place of pointing upwards in the same direction, stand out directly from the ear, like the teeth of a comb. It is remarkably close set, one ear very often containing eighty grains. This grain may, with propriety, be called East Lothian barley, having been introduced by the late Sir George Suttie of Balgona, who propagated it from one or two ears he accidentally observed in one of his fields; an attention highly praiseworthy, and which, if more universal, would be attended with considerable benefit, as there cannot be a doubt that many valuable varieties, not only of barley but other grains, might be obtained if they were carefully looked after. This barley requires to be early sown, and should not be ventured later than the beginning of April, though in dry warm seasons, it will bear to be sown much later.

Quadrangular Barley.—This barley is better known by the name of Beer or Big; and though very productive, it is not much cultivated in this county; what is sown is chiefly in the upland and hilly districts, where it is preferred on account of its ripening early. A variety of this seed, with six rows of grain in each ear, has lately been introduced from Switzerland, but it seems to possess no properties different from the kind cultivated in Aberdeenshire, and other parts in the north of Scotland, where it has been long known.

Preparation.—In a few instances barley is sown after wheat, a practice universally condemned, and fast wearing out. The common preparation is either fallow or turnip, in both cases, the crop is good. When it is sown upon well wrought fallow, the safety of the land requires that it should have a furrow in the spring, as in that way, there is a chance of destroying any annual weeds which then have vegetated. If the ploughing is given early enough, the crop that has vegetated through the winter, will be ploughed down, and, if two or three weeks intervened between that and the sowing, another crop will be destroyed by the harrows.

Quantity of Seed.—The quantity sown is different in different cases, according to the quality of the soil, and other circumstances; upon very rich lands ten pecks per acre are sometimes sown, twelve is very common, and upon poor land, not less than a boll is sometimes sown. Amongst the best farmers, it seems a disputed point whether the practice of giving so small a quantity of seed to the best lands, is proper or advantageous; that there is a saving of grain, there is no manner of doubt, and that the bulk may be as great, as if more seed had been sown, there can be as little question; little argument however is necessary to prove, that thin sowing of barley must be attended with considerable disadvantage, for, if the early part of the season be dry, the plants will not only be stinted in their growth, but will not send out offsets, and if rain afterwards fall, an occurrence that must take place some time during the summer, often at a later period of it, the plants begin to stool, and send out a number of young shoots. These young shoots, unless under very favourable circumstances, cannot be expected to arrive at maturity, or if their ripening is waited for, there will be a very great risk of losing the early part of the crop, a circumstance that frequently happens. In almost every instance, a very unequal sample is produced, and the grain is for the most part of an inferior quality. By good judges it is thought preferable to sow a quantity of seed sufficient to insure a good crop, without depending much on its sending out offsets; indeed, where that is done, few offsets are produced, the crop grows and ripens equally, and the grain is uniformly good.

Harvesting.—More care is required in the harvesting of barley, than any of the other white crops, even in the best of seasons, and in bad years it is often found a very difficult matter to save it. Owing to the brittleness of the straw, after it has reached a certain period, it must be cut down, as when it is suffered to stand longer, much loss is sustained by the breaking of the heads; on that account it is cut at a time when the grain is soft, and the straw retains a great proportion of its natural juices, consequently it requires a long time in the field before either the grain is hardened or the straw sufficiently dry; when put into the stack sooner it is apt to heat, and much loss is frequently sustained. It is a custom with many farmers to have an opening in the middle of their barley stacks from top to bottom, these openings are generally made by placing a large bundle of straw at the bottom, when the building of the stack commences, and in proportion as it rises the straw is drawn upwards, leaving a hollow behind it, which, if one or two openings are left at the bottom, insures so complete a circulation of air, as not only to prevent heating, but to preserve the grain from becoming musty.

Produce.—Upon the coast lands, where sea weed is used as a manure, the produce, unless in very dry or unfavourable seasons, is from ten to twelve bolls per acre. In the midland and upland districts seven bolls may be reckoned the average, even in the best years.

A considerable quantity of barley is consumed at the distilleries and breweries within the county; some pot barley is likewise manufactured, part of which is carried to Edinburgh, Glasgow, Greenock and other places; a good deal has been made into meal, in seasons of scarcity, and used for bread and other articles of human food. The demand for malt has greatly declined of late years; at one period, the demand was considerable, and a great deal was made, much of which was sent to Edinburgh and other places.

OATS.

The kinds of this grain commonly cultivated in East Lothian, are

1. Blainslie oats.
2. Angus ditto.
3. Poland ditto.
4. Red ditto.
5. Dun ditto.
6. Potato ditto.

Common Oats.—This variety is of great antiquity in the county, and upon good land in favourable seasons, yields a crop superior to most of the other kinds; besides having a good ear, it has strong straw, stands well up, and produces a great quantity of fodder. This kind has a further advantage of growing upon the poorest soils, and till of late years was almost the only kind cultivated either in the upland or Lammermuir districts. Since the calamitous year 1782 however, it has been entirely disused in these late situations, and the Dutch and red kinds substituted in its place.

Blainslie Oats—Derive their name from a district in Berwickshire, where they are produced; they are nothing else than the common oats, and owe their peculiarity to the situation where they grow. When brought into this county, the grain, though in general hard and well filled, is short and small; but, after being sown once or twice on the best lands, it has its appearance very much changed, is nearly three times the bulk, and ripens at least three weeks earlier than in its native soil.

Angus Oats.—This variety is produced in an elevated district in the county of Angus. When first introduced into this county, it was later in ripening, and had larger grain than since it was naturalized. Next to the common oats, the Angus affords the largest proportion of fodder, and are greater favourites with the East Lothian farmers than the common oats.

Poland Oats.—Previous to the year 1782, this variety was not cultivated in East Lothian, but since that time it has crept in, and till very lately was generally sown on the coast, and even in many places of the midland district, where it was highly valued on account of its early ripening. In general, this grain produces well as to the number of bolls, but the quantity of fodder is much less than that of any of the kinds formerly described. The crop likewise is very susceptible of injury from shaking, and that too, even before it has reached maturity. This circumstance is peculiarly unfavourable, as the great excellence of the Polish oats, is their ripening in good time, where others might be apt to be late, but in such situations the danger from wind is generally so much the greater.

Red Oats.—The county is said to be indebted for the introduction of this kind, to Mr. Brodie, late of Upper Keith now at Amisfield mains, near Haddington. It is a valuable acquisition, particularly to the upper district of the county. Before the introduction of this seed, and when the common oats only were sown, the crop frequently either failed entirely, or was very much damaged; in the year 1782 it was almost entirely lost; since that, however, notwithstanding the elevation of the upland district, the oat crop has been harvested nearly as soon and in as good order as in the lowlands. This kind derives its name from the colour, which when ripe is reddish; the quantity of fodder is small, but the number of bolls is greater than what might be expected from appearances, the grain when fully ripened, weighs well and yields as great a proportion of meal as any of the other varieties known in the county. Nature seems to have marked it out for hilly and upland situations, and the general use of it, over the whole of Britain, would be attended with great advantage, especially upon the west coast of the island, and over the whole of the north of Scotland.

Dun Oats.—This variety has been lately introduced from Fifeshire, and promises to be valuable; it is of a dun or dirty gray colour, nearly resembling the white kinds that have been injured by heating. The quantity of straw, like that of the red and Dutch kinds, is small; it produces well however, as to the quantity of grain, and owing to the thinness of the husk, yields a large proportion of meal; it has the additional property of not

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being easily shaken, ripening early, and thriving better than any of the other kinds upon poor soils.

Potato Oats.—This fashionable variety of early oats was introduced among us in 1801, and promises to be a great acquisition where care is taken to procure pure and unmixed seed. These oats thrive better than the Polish, are better foragers, consequently need not to be sown so thick, return a greater quantity of fodder, which is an important circumstance, and yield a greater weight of meal than any other variety with which we are acquainted. They will also thrive on soils where Polish oats would not be worth cutting; in short, this kind is attended with so many recommendations, of which every one seems sensible, that they are spreading rapidly and widely through every part of the county. Many farmers already sow no other kind.

The importance of oats as an article of food both for man and beast in Scotland, is well known; amongst the lower ranks scarcely any thing else is used for breakfast and supper, especially in the country, and with the middle and even the higher classes of society, it is the ordinary supper and breakfast of the children; formerly cakes and other bread made of oats was very common, of late years however the predilection of all ranks for wheaten bread, has nearly superseded the use of oat bread.

BEANS.

Beans are cultivated to a considerable extent, especially in the coast and midland districts; they are chiefly drilled, and upon light soils and thin clays have a proportion of peas sown along with them; upon deep strong lands however, they are generally sown by themselves, as in cases where the season is only moderately moist, there is a risk of the peas growing too luxuriantly and choaking the beans, an accident that not unfrequently happens.

Preparation.—Beans are sown after all white crops, and have two or more ploughings, according as the soil is clean, or as the state of the weather will permit; when the land is tolerably clean, beans are sown with two ploughings only, but where it is dirty, three furrows are often given, the first before winter, the others in the spring when the crop is sown, which is done by drilling after the plough every third furrow. It is now become very common to ridge up the land, and to run the drill harrow in the intervals, which is an expeditious method, as by harrowing across, the seed is completely covered, and an earlier braid procured than when the whole land is ploughed over. This practice is not troublesome; and where the soil is free from root weeds, answers the purpose tolerably well, but where it is dirty the roots are harrowed into the drills, and by mixing with the crop, it is found nearly impossible to kill them. Of late, a machine has been invented (as was mentioned Chap. V.) that sows three drills at a time; in this place it is only necessary to observe, that its use is limited to those cases, where the land has been previously ribbed up Some prefer harrowing after the machine, while others split the land between the drills with a plough, and in that way cover the seed. In the latter case the harrowing is deferred for two or three weeks, which, in general insures the destruction of a crop of annuals. Dung is frequently applied to beans, but as the succeeding crop in general is wheat, the dung is for the most part applied to it.

Culture whilst growing.—Where beans are drilled, the first culture bestowed upon them is a complete harrowing, just before they appear above ground, which for the most part destroys a crop of annuals; with some farmers it is common to defer the harrowing, not only till the beans have made their appearance, but for a considerable time thereafter, sometimes two or three weeks; the reason assigned for this delay, is that a much greater quantity of annual and other weeds is thereby destroyed. The practice however is generally condemned by the best farmers, who always make it a point, unless they are prevented by bad weather, to have the harrowing finished before the beans appear above ground. There is little doubt but even this early harrowing will to a certain degree break and injure the crop; that injury however is of less consequence at so early a stage, as the bean, by having only made the shoot without spreading leaves, is in no shape exhausted, and as the air has no access to the wounded part, a new and vigorous shoot is immediately sent out; whereas, when the crop is farther advanced, and the plants have fairly expanded their first leaves, and begun to draw a degree of nourishment from the atmosphere as well as the earth, a part of the wounds or bruises they receive being exposed to the action both of the air and light, considerable injury and loss follows, a great proportion of the plants so injured die entirely, and such as survive put out weak sickly shoots. Perhaps, in almost every instance, the safest and best method would be to harrow immediately after drilling, provided the weather is favourable, and the land will bear the operation; this admits of being done upon all loams that are laid sufficiently dry; upon strong clays, however, where the crop has been put in with a degree of moisture, andwhere the furrow is entire, there may be a chance of its being reduced by the spring frosts. Upon such soils the harrowing may with propriety be delayed as long as there is any chance of frost; but as clay soils are generally the last in drying, and the seed time upon a great proportion of them is so late, as almost to preclude the chance of their being meliorated by frost, the most effectual way of preparing such soils for the reception of the crop, will be found to consist in giving the ploughings before winter, the first ploughing across, the second, in the direction of the ridges ribbed up; where this is properly done, the soil, by the action of the winter's frost, will be found completely reduced; and if the beans are either sown broad cast and harrowed in, or drilled with the improved drilling machine, the ridges split with the plough, and afterwards well harrowed, the land will be sufficiently reduced, and the crop a good one. Beans ought perhaps never to be sown broad cast; if they are, it should only be upon lands that are very clean, or of a strong nature.

The remaining culture during the growth of beans, consists in horse-hoeing, ploughing, and hand-weeding; where the crop is sown thick, that is every second furrow, the hand-hoe only is used; two or three hoeings are generally given in the course of summer, and the weeds picked out of the drills by the hand. This practice, however, is not common, nor does it deserve to be so; many disadvantages attend the drilling of beans so thick. They are in general much drawn, the stalk tender, and owing to the want of light and a free circulation of air, many of the flowers fall off without setting pods; whereas, when the drills are wide, the light and air have free access on all sides, the plants are strong, and the whole of the early flowers, which are by much the most valuable, set healthy pods. Where the drills are sufficiently wide, the first operation, in general, is with the scraper, which loosens all the weeds effectually, after which a complete horse-hoeing is given, which, if the land is light, is repeated once or twice, the earth is afterwards laid up to the drills on each side, either by a double mould-board plough, or more generally by the turnip plough.

PEAS.

Peas are not cultivated in the county to such an extent as formerly; they are sown both broad cast and in drills, either with or without a mixture of beans; upon light lands in the lower parts of the county, they are frequently drilled without any mixture, but, in by far the greater proportion of light dry loams, they are mixed with beans, as also upon clay soils, where some farmers still continue to sow them broad cast, a practice justly condemned, and which is now fast going into disuse.

Two kinds of pea are cultivated in East Lothian; the common, which is sown about the end of February, and the Hasting, which admits of being sown a month later; the former is most generally cultivated on account of its yielding a greater produce both in grain and straw, the latter being of great value for fodder. In the Lammermuir district no beans have yet been attempted, peas only are sown, which upon such of their lands as have been recently limed, yield very great returns, one boll sometimes producing nine or ten, in seasons tolerably dry and warm, but five bolls may be reckoned a fair average.

Culture whilst growing.—In cases where peas are drilled, the culture does not differ from that mentioned for beans; when they are sown broad cast, no culture whatever is bestowed, unless it be sometimes giving them a harrowing after they have been two or three weeks above ground, which is done for the double purpose of destroying weeds and loosening the soil, both of which purposes would be answered equally well by harrowing at an earlier period, and much less injury done to the crop.

Harvesting.—Beans and peas are both harvested in the same manner; they are cut by the sickle and laid down in handfuls, in which state they are allowed to remain till the leaves and straw are somewhat withered; when these handfuls are collected and bound into sheaves, they are then set up into stacks, where they are suffered to stand till they are fit for putting into the stack; next to barley there is no kind of grain that requires to be more completely cured before stacking, than beans and peas. In ordinary years, when the crop is ripened in proper time, and the weather continues warm and dry for only a short time after they are cut, they may be stacked with safety; but in late seasons, when they continue growing to the last, and are cut down full of sap and covered with green leaves, if the weather continue warm and moist for any considerable time after, it requires no common degree of trouble to prevent great injury from being done both to the grain and straw; indeed, in every instance where beans and peas are cut under these circumstances, the straw is greatly injured from the leaves lodging the moisture, and rotting, which they very soon do, especially if the crop is tied; the grain however is less susceptible of injury from moisture when cut green, as it is found much less liable to open or become mouldy, than when it is fully ripened. This advantage, though for a time it is a kind of security to the grain, is more than counterbalanced by the bad effects that follow, especially if the season continue wet throughout, as it is found nearly impossible to preserve it in the stack. The year 1799 afforded a distressing proof of the truth of this observation, as a very great proportion of all the beans and peas in the three upper districts of the county, were either lost, or much damaged, and that too in spite of every pains that could be taken. A great deal of this crop remained upon the ground till the end of December, and was kept constantly on end, labourers being employed every day to set up what had fallen down; after all, both grain and fodder were nearly a total loss. The period most proper for cutting this crop, appears to be about midway between the extremes of complete ripeness and a green juicy state, that is, when the leaves begin to lose their dark-green colour and put on a yellowish appearance. In that stage the grain has received every thing necessary to perfect it from the earth, every valuable property of the straw is preserved, the pods, owing to the toughness and firm adhesion of the sides of the husk, do not readily open, and if the crop is laid down in handfuls, in a very few days the straw will be found sufficiently dry for putting into the stack with this advantage, that if rain chance to fall, a single fair day with a light wind will dry it again. In late seasons this grain ought always to have an opening or funnel in the middle of the stack nearly from top to bottom, together with side openings communicating therewith at the bottom; these when properly made, unless the grain has been very green and raw, effectually prevent it either from heating or growing mouldy.

Produce.—Where beans and peas are sown broadcast, the produce is in general low, seldom exceeding six, or at the most eight bolls per acre; there are some instances of more, but a greater number of much less. Drilled beans upon good land and in favourable seasons, have been known to produce fifteen bolls per acre, twelve are frequently reaped, but eight or nine are considered as a tolerable crop.

The principal part of this grain used within the county is employed in feeding horses; a small proportion of beans along with peas is mixed with barley and oats, and used for bread; a considerable quantity of both beans and peas is carried to various towns in the west of Scotland, and consumed partly by horses and partly in different articles of human food.

RYE.

Till of late years the quantity of this grain cultivated here was very small; at present it is not great, and is confined chiefly to the light sandy soils on the coast, and to a few parts of the midland district. In the latter district it is sown chiefly in the immediate vicinity of farm-houses and large villages, where it serves to protect other grain from poultry, as they are known not to eat it. It is not much used for bread, though known to be very wholesome and nutritious; the principal part of it is employed in the distilleries, and a small proportion by the bakers of gingerbread. Rye admits of being raised to a much greater extent, but the demand being very limited and the price low, farmers have no inducement to extend the culture of it.

TARES.

Tares are seldom cultivated here for any other purpose than as green food for horses, which they answer extremely well; they are generally sown in the spring, and come in very seasonably for green food after the first crop of clover is cut, and continue in high perfection till the end of October. The fitch, or gray pea, as it is provincially called, is a greater favourite with some farmers than the tare; it affords a greater quantity of green food, and when allowed to ripen, the crop is valuable both in respect of grain and straw; this is not the case with the tare, the quantity of grain is small, and the straw of little value.

POTATOES.

This valuable root, like many other things which are looked on as great acquisitions, owed its general introduction to a public calamity, occasioned by a year of uncommon scarcity. In 1740 a small quantity was imported from Ireland and planted in gardens, to which their culture was confined for the best part of twenty years, before they began to be cultivated in the field. The first attempt to cultivate them worth noticing, was made upon a part of the estate formerly the property of the Earl of Portmore, now of the Earl of Wymess near Aberlady, by a Mr. Hay, then tenant of Graigilaw. It is only however within the last thirty years that the culture has become general: since that time it has gradually increased, and potatoes are now become a very bulky and valuable article of food for the whole of the lower ranks, and a substitute for bread at the tables of all the superior ranks. The quantity cultivated in East Lothian is not considerable. By most of the farmers they are only cultivated for themselves and servants, and seldom brought to market; their culture is chiefly confined to the neighbourhood of the towns of Haddington, Dunbar, North Berwick, and the larger villages, where they are planted partly by the small farmers for sale, and partly by mechanics and labourers, who readily take land that is intended for fallow, and plant it with potatoes, paying at the same time a high rent, not less than five or six pounds per acre, sometimes nine or ten.

Preparation.—The preparation of the soil for potatoes is different in different cases; where they are meant as a cleaning crop, the land is generally either ploughed across or ribbed up before winter, in which situation it is left till the spring, when it is completely harrowed, and the couch and other root weeds gathered out; it is then either ribbed up or clean ploughed, and the potatoes planted after the plough; when ribbing is practised, the drills are carefully drawn in the same manner as for turnips, and if manure is applied, which is not always the case, it is carefully laid into the drills, sometimes above, sometimes below, the sets. The former is by some reckoned the best mode of applying it; the general practice, however, is to lay the whole manure in the drills first, and plant the sets above, the interstices are then split with the plough, which covers both the sets and the manure. It is common to lay the manure in heaps, and have it afterwards laid into the drills by the hand, an operation that is attended with some expense, and in most cases might be done without, as it might, with tolerable expedition, be laid in from the cart by the person who drives it; a little more time would no doubt be required, but the expense, upon the whole, would certainly be less. When potatoes are planted after the plough, the manure is, for the most part, spread over the whole surface, and afterwards drawn into the furrow in which the potatoes are planted, with rakes. The distance between the drills is from two feet to thirty inches, and between plant and plant, from nine to twelve inches.

Culture whilst growing.—After planting, the first operation consists in a complete harrowing, which is given when the potatoes are beginning to appear above ground, and if there are any root weeds, they are gathered out and carried off; the remaining culture consists in frequent hoeings, these are sometimes given by the hand, sometimes by the plough; when hoed by the hand, two, and sometimes three, hoeings are given, and the earth afterwards drawn up to the roots; when horse-hoed, the same number are also given, and the earth afterwards laid up with a double mould-board plough. In some cases, they are dressed like turnips, that is, the earth is taken away from the sides of the drills and laid into the middle, and after it has remained there a certain time, it is again laid up to the roots, with the double mould-board plough. No further attention is required, except picking up such weeds with the hand, as may have been left in the drills.

Sorts.—There is perhaps no plant yet known, that admits of such variety as the potato; which may be said to be almost infinite; when they are raised from the apple, scarcely any two are found exactly to resemble each other. To attempt a description of all the kinds, cultivated in this county, could answer no useful purpose; in fact, when they are classed into late and early kinds, little more seems to be necessary.

The Early Dwarf.—This potato is of a small size, and cultivated chiefly in gardens, as a luxury for the table; the weight per acre is by no means equal to what is obtained from any other potato, but the deficiency in point of weight is much more than compensated by the high price which they bring, and the opportunity that is thereby afforded, of putting another crop upon the ground, at an early period of the season. As an article of profit to the cultivator, they are deserving of attention; but as furnishing a bulky or essential article of food, they weigh light in the scale; indeed, except in a very few instances, the planting of them is, in a great measure laid aside, since the introduction of a larger and more valuable kind, known by the name of the

Royal or Cumberland early:—Of this potato there are several varieties, the principal of which are the flat and round. The flat does not grow to a large size, but is very prolific, of a handsome shape, and eats well. The round ripens equally early, grows to a great size, and is also very prolific and well flavoured. Both kinds, from the weight produced, form a great addition to the stock of human food; and they ripen so early as to admit of the ground being profitably employed in raising another crop, such as green peas, turnips, cabbages, or kail. It is to be observed, however, that, when the land is very foul with couch-grass or other root weeds, neither this, nor indeed any kind of potato, can with propriety be planted; they require to be put into the ground so early, as to prevent the soil from being properly cleaned.

This variety deserves particular notice on another account; it comes in at a time, when the prices of grain are usually at the highest, namely between the old and the new crops. This is a period often of considerable distress to many of the lower classes, and a plentiful supply of potatoes would be a great relief. If the cultivator could, with advantage to himself, raise a crop of this kind, in the manner above noticed, two important objects would be secured.

Late Potatoes.—The varieties, belonging to this class are exceedingly numerous, but it will suffice to mention two or three of the most commonly cultivated.

Formerly the flat kidney was almost the only late kind cultivated in the county; the large kind has been but lately introduced; it is of an oblong shape, rather thin in proportion to its length, round at the extremities, one of which is broader than the other, the colour is uniformly white, and the skin smooth; it derives its name from the resemblance which it bears in shape to a kidney. When free from curl, this potato is very prolific, and arrives at maturity sooner than any other of the late kinds; on this account it deserves a preference, and as it seems to delight in light soils, it is perhaps the only kind that should be cultivated on such lands.

A variety, called the Killimanca, was some time ago introduced, which seemed to possess the most valuable qualities of the kidney; this, with the black-a-moor, was lately cultivated more generally than any other. Both these varieties keep long, and indeed rather improve in flavour in the spring; besides, what is of great importance, they seem less liable to curl, than any other with which we are acquainted. They are now, however, superseded by others; and, as already said, the varieties cannot be classified.

YAM, OR SURINAM POTATO.

WHITE AND RED.

Several years ago, different kinds of yams were cultivated to some extent, and with a promise of success, but owing to causes, which are not very obvious, they are now less generally planted. Some attempts have been made to feed horses and cattle with them, but the practice is not on the increase, though still a number of farmers raise a few, for the use of their hogs. One thing, with regard to this root, is perhaps unfavourable to the cultivation of it extensively; it is entirely unfit for human food, at least no person will eat it, now that common potatoes are plentiful, and for cattle, it is probably not superior to other articles, which may be more profitably cultivated.

TURNIPS.

This valuable root was introduced into the county about eighty years ago, by that celebrated friend of improvements, Cockburn of Ormiston, on whose estates crops were raised, superior in weight to most of the present time. Very little of the Ormiston land, however, was found well calculated for growing turnips, therefore the culture of them was soon given up. It was not earlier than 1760 that they were reintroduced; about that period, several gentlemen and farmers of activity and discernment commenced this branch of husbandry on the most approved plan.

Sir George Suttie, Bart. who had seen the practice of Flanders and Norfolk, and who possessed talents for observing and executing any kind of improvement, raised excellent crops of turnips upon the heavy loams and clays of Balgone, though such soils are now considered not the most fit for that branch of husbandry.—Sir George was a warm advocate for wide intervals, which is certainly a good plan, and particularly shewed his judgment, considering the ground he had to manage. It is of great importance to have a large interval, on such soils, because it affords a facility for raising up the drills or ridges to a proper height, and thereby placing the roots beyond the reach of being injured by superfluous moisture. The spaces between the drills were seldom less than five feet, sometimes so large as six, which allowed the ground to be completely summer fallowed, and the turnips to grow to a great size. Perhaps, a more successful mode could not be followed on clay soils, where particular circumstances might render the culture of this root necessary; but, in general husbandry, it may be safely maintained, that such soils ought not to be employed in raising turnips, because any primary benefit to be derived from them is more than counterbalanced by the after loss.

Though turnips were introduced into this county at the period above mentioned, an interval of several years elapsed, before they were generally cultivated in a regular manner. About 1772 the practice began to spread, especially upon the coast, and has gradually increased to the present day, when perhaps it is conducted on as large a scale as is consistent with good management.—The extent of real turnip soil in East Lothian is not great, and, if the crop be often repeated, experience warrants the conclusion, that it will be proportionally unproductive, whilst the succeeding grain crops may, at the same time, be diminished. In fact, several farms have been much injured by the culture of turnips, particularly where the soil has an inclination to hardness, or is incumbent on a wet bottom; on all such soils, a clean summer fallow proves to be a preferable system.

Preparation.—The first ploughing is given immediately after harvest, or as soon as the wheat-seed is finished, either in length or across the field, as circumstances may seem to require. In this state, the ground remains till the oat seed is finished, when a second ploughing is given to it, usually in a contrary direction to the first. It is then repeatedly harrowed, often rolled between the harrowings, and every particle of root weeds carefully picked off with the hand; a third ploughing is then bestowed, and the other operations are repeated. In this stage, if the ground has not been very foul, the seed process generally commences; but often a fourth ploughing, sometimes a fifth is necessary, before the ground is sufficiently cleaned. Less labour, however, is necessary now than in former times, when a more irregular mode of cropping was commonly followed.

Manuring.—Turnip land cannot be made too rich, for in fact, the weight of the crop depends, in a great measure, upon its condition in this respect. Manure is sometimes applied to the crop, which immediately precedes the turnips, but, to answer well in this way, the land must naturally be of an excellent quality. It is in other cases, where the land is in good order, laid on the stubble previous to the first ploughing. But generally, the dung is laid on immediately before the seed is sown; the ground is formed into drills or ridges, and the manure spread in the intervals between them; the drills are then split by the plough, the earth, on each side, covers the dung, forms a drill where the interval formerly was, and furnishes a bed for the seed. These operations are now so well understood, that it is unnecessary to describe them further.

Sowing.—The next part of the process is the sowing of the seed; this, almost in every case since turnips were introduced into the district, has been performed by drilling machines, of different sizes and constructions, though all acting on the same principles. At this time, the fashionable machine is drawn by a horse in a pair of shafts, sows two drills at a time, and answers extremely well, where the ground is flat and the drills properly made up. The weight of the machine insures a regularity of sowing, hardly to be gained by those of a different size and construction. From two to three pounds of seed are sown upon the acre, though the smallest of these quantities will give many more plants, in ordinary seasons, than are necessary; but, as the seed is not an expensive article, the greater part of farmers incline to sow thick, which both provides against the danger of part of the seed perishing, and gives the young plants an advantage at the outset.

Time of Sowing.—Turnips are sown from the beginning to the end of June; but the second and third weeks of the month are, by judicious farmers, accounted the most proper time. Some people have sown as early as May, and with advantage, but these early fields are apt to run to seed before winter, especially if the autumn be favourable to vegetation. As a general rule, it may be laid down, that the earliest sowing should be on the latest soils; plants on such soils are often long before they make any great progress, and in the end, may be far behind those, in other situations, which were much later sown. The turnip plant, indeed, does not thrive rapidly till its roots reach the dung, and the previous nourishment afforded them is often so scanty, as to stunt them altogether, before they get so far.

Cleaning Process.—The first thing to be done in this process is to run a horse-hoe, provincially called a scraper, along the intervals, keeping at such a distance from the young plants, as that they shall not be injured; this operation destroys all the annual weeds, which have sprung up, and leaves the plants standing in regular stripes or rows. The hand-hoeing then commences, by which the turnips are all singled out, at a distance of from eight to twelve inches, and the redundant ones drawn into the spaces between the rows. The singling out of the young plants is an operation of great importance, for an error committed in this process can hardly be afterwards rectified. Boys and girls are always employed as hoers, but a steady trusty man servant is usually set over them, to see that the work be properly executed.

In eight or ten days, or such a length of time as circumstances may require, a horse-hoe of a different construction from the scraper is used. This, in fact, is generally a small plough, of the same kind with that commonly wrought, but of smaller dimensions. By this implement, the earth is pared away from the sides of the drills, and a sort of new ridge formed in the middle of the former interval. The hand-hoers are again set to work, and every weed and superfluous turnip is cut up; afterwards the horse-hoe is employed to separate the earth, which it formerly threw into the furrows, and lay it back to the sides of the drills. On dry lands this is done by the scraper; but, where the least tendency to moisture prevails, the small plough is used, in order that the furrows may be perfectly cleaned out. This latter mode indeed is very generally practised.

Consumption.—The greatest part of our turnips are consumed by sheep, because the feeding with these animals can be carried on upon a much larger scale, and at less expense, than in most cases with cattle. It is customary, however, with many people, to consume their turnips both ways: they draw a certain number of drills, generally three or four in one place, and leave as many or more to be eaten with the sheep; by which method the whole ground is equally benefited by the urine and dung of the flock. It is commonly wedder sheep of the black-faced breed, purchased chiefly of the highland drovers, at the end of autumn, that are kept for this purpose.

Some farmers give their turnips to the wintering cattle, kept in the fold-yard, upon straw, which causes them to feed very rapidly, when put to the grass in the succeeding season; others give them to young stock, and probably with much advantage. Both these last plans are eminently beneficial to such farmers as are disabled by local circumstances, from cultivating this root extensively.

RUTA BAGA.

To procure an article of green food, whereby cattle and sheep could be supported and fattened, between the turnip and grass seasons, was long a desideratum among agriculturists. This is now fully obtained in the introduction of ruta baga or Swedish turnip; and the acquisition is of greater importance to the feeders of cattle and sheep than can be calculated. By it stock can either be carried on to the grass season, without losing the flesh that they have got, or be supported till they can find a market, without the necessity of being sold at a disadvantage, when the turnips are eaten up.

Ruta baga has been cultivated, less or more, in this county for twelve years past, and was getting fast into repute with every farmer, till a supply of bad or degenerate seed, four or five years ago, led many people to give it up. By the attention of some respectable agriculturists, fresh seed of the best kind has been again obtained, which, it is to be hoped, will restore the credit of this valuable root. As no dependance can be placed on the seed purchased in the shops, every farmer ought to raise seed for himself; this may be done with very little trouble and at no expense; it is only necessary that the seed plants be carefully placed by themselves, and not allowed to be near other plants bearing flowers or seed, while they are in the same state. The danger seems to result from plants, of kinds nearly related to each other, mixing the farina of their flowers, when growing to seed. The ruta baga seems much liable to some adulteration of this kind, and unless farmers guard against it, by taking the trouble to preserve their own seed, they need hardly expect it genuine,

Besides affording a rich food for cattle and sheep at a very critical period, ruta baga forms a most delicious article of food for farm horses, either when given raw, or when boiled and mixed with barley-dust or broken corn. If a sufficient quantity were cultivated, it is well ascertained, that a great deal of grain might be saved, which is now given to the working stock. The health of the animals too would be greatly benefited, even by one moderate meal dailyof this valuable esculent, mashed and given in the evening.

Ruta baga is cultivated in the same manner as the common turnip; nor is there any difference to be observed, in any thing connected with the manner of it, except that it must be sown three weeks or a month earlier; it likewise requires a larger quantity of manure. In short, this root must be planted on a soil, either naturally or artificially rich, otherwise a full crop is not to be expected.

FLAX.

Flax has been sown in this county from time immemorial; but chiefly on a small scale, and for the home consumption of the country inhabitants. Every cottager has a small quantity, from half a peck to a peck, sown, the produce of which furnishes linen for the use of his family. Very little is cultivated for sale; indeed, not much of the soil appears to be calculated for the growth of it. Flax requires a moist deep soil, which has lately been broken up from grass, and seldom yields a full crop in dry seasons; here, where the seasons are generally dry, it cannot be expected to be ordinarily a profitable crop. Both our climate and soil indeed are unfavourable in this respect, and occasion many failures, when the culture of flax is attempted; it is, by no means, a favourite with the greater part of our farmers, it returns no dung, and is pernicious to the ground, by encouraging the growth of weeds.

Some years ago, this article was extensively raised for the seed, which was sold to other districts. It was, for that purpose, sown upon fresh moors, and a handsome return was sometimes received, from land comparatively of little value. The zeal, however, of those who attempted this new method of raising flax, was damped by the difficulty, which often occurred, of finding purchasers, and it does not appear, that it will soon be revived. Seed, however, was raised of a quality equal, if not superior, to that which is every year imported from Holland; but the prejudice in favour of foreign seed must be removed, before that which is raised at home can find a ready market. That a partial renewal of seed may be necessary, will not be disputed, but that it ought to be imported every year seems highly absurd. Some farmers have sown flax-seed, raised on their own land, for ten successive years, without perceiving any degeneracy, and why it should be otherwise with this, and not with seeds of other kinds, cannot be explained. When a degeneracy takes place, in this as in other seeds, a change is certainly requisite; but an annual importation, of what we might raise for ourselves, must be regarded as a public loss. The money, which is in this manner sent out of the country, might be applied to a better purpose.

CROPS NOT COMMONLY CULTIVATED.

CABBAGES.

Cabbages are rarely cultivated in the field, as food for cattle or sheep, because the object is attained, with greater facility, by ruta baga and turnips. Where the attempt has been made, the success has seldom been such as to encourage perseverance. In truth, cabbages may be regarded as an article confined to the garden, and forming little or no part of field crops. It might be difficult to point out any advantage attending cabbages, which does not result from the common and Swedish turnip; but it would not be so difficult to show advantages attending these, which could hardly be expected from the other.

CARROTS.

This article, like cabbages, is seldom planted in the field; in some cases, however, very good crops have been raised. Baron Hepburn of Smeaton had a small field, last year, occupied with this root, which produced a very good crop. Few trials, however, have been made to raise carrots in this county, nor can the culture of them be regarded as of great importance to the farmer.

RAPE OR COLE-SEED.

The late Sir George Suttie cultivated rape, and some others followed his example; but the practice was afterwards discontinued, probably because it was found unprofitable. Of late, a few attempts have been made to sow it on land intended, in the succeeding year, for turnips: but hitherto without much prospect of advantage. The climate seems to be too late and cold for a crop of this kind, though it may probably be advantageous in more favourable circumstances.

WOAD.

The dyers at Haddington have sometimes, on fields which they rented for the purpose, raised pretty good crops of this vegetable; but they seldom have raised it to a greater extent than was necessary for their own consumption. The management of it appears to have been well understood: it requires land of the first quality, must have diligent attention paid to keep it clean, and be cut at the proper season.

LUCERN.

Various trials of that grass have been made here, but none of them with that success which can encourage the farmers to adopt it. Forty years ago, the Rev. M. Reid, at Preston Kirk, cultivated lucern according to the drill husbandry, as recommended by Du Hamel and others. He raised pretty good crops, but, after all, not of greater weight than can be had from red clover. Our northern climate seems to be unfavourable to this and many other exotics; they either cannot be made to flourish at all, or require more labour and attention than they are able to repay. This is doubtless a disadvantage to which we are subjected, but it ought to occasion the less regret, because the things of which it deprives us are generally less valuable than those which we can enjoy in considerable perfection.

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CHAPTER VIII.

GRASS.

SECT. I.—NATURAL MEADOWS AND PASTURES.

It has been already stated that this is to be regarded as a corn district, and that, in the general system of husbandry practised, every thing is made subservient to tillage; it will not therefore be expected that much of the land is held in permanent pasture, or even kept in that state for many successive years. There exists no artificial obstacle to the culture of corn; proprietors seldom impose restrictions, with regard to the breaking up of old grass, and there are no tithes to diminish the profits of the farmer; accordingly almost all the land capable of the operation is in its turn subjected to the plough.

There is but a very small portion, in the lower districts of the county, of what, in Scotland, is called meadow, that is land occasionally under water. All land, in this situation, capable of being laid permanently dry, and considered worthy of the trouble, has been drained and ploughed; the extent of ground, incapable of this is not great. In the Lammermuir district, there may be rather more of this kind of meadow, but over the whole country, the quantity may be said to be inconsiderable.

Natural pasture grass, or land in grass which has not received artificial seeds, is likewise inconsiderable, except in the Lammermuir district. A few parks of old grass may be seen about gentlemen's seats, but they are seldom of great extent, and seem rather to be kept for pleasure or convenience than for profit. There would not be an inch of arable land in the county, kept in this state, were it not for the reasons just now hinted, because it is universally accounted unprofitable husbandry. Ground, which has lain a considerable time in pasture, bears weighty corn crops; and, when it has been well cleaned and reduced by repeated ploughings, bears better grass, after being sown down, than it did before it was broken up.

Natural meadows and pastures, therefore, it may be said, are not admitted into the East Lothian system of husbandry, as they are found only where nature or certain local circumstances render them, in some measure, unavoidable, and are never kept voluntarily, or from an idea of profit. Many farmers allow land to lie for a few years in grass, especially where it has been exhausted by long and imperfect tillage; but fields of this description are not to be ranked as permanent pastures, for the object is to restore them as soon as possible to a state capable of bearing corn crops to advantage.

SECT. II.—ARTIFICIAL GRASS.

Theintroduction of artificial grasses into this country is not of an ancient date, Thomas the sixth Earl of Haddington, grandfather of the present Earl, is said to have been the first person who sowed broad clover. This nobleman wrote a treatise on forest trees and other branches of rural economy, bearing date December, 1733. He must have been in the practice of sowing clover, previous to that period, because he gives directions for cultivating it, and even relates the manner in which he was accustomed to sow his own seed. Mr. Cockburn of Ormiston also sowed artificial grasses about the same period, as appears from various letters written by him to his tenants between the years 1724 and 1730.

The example of these great improvers seems not to have had much influence for a long time. It was not till about the year 1740, that the proprietor of the estate of Smeaton,* whose lands lay adjacent to those of Lord Haddington, began to sow clover; which, it may be remarked, is a wonderful instance of the slow progress of improvements at that period. It frequently happens when improvements are first introduced, especially among people long accustomed to move in the same uniform track, that some of the first experiments are made at considerable expense, and with little profit. That this happened, upon the introduction of artificial grasses, there is little reason to doubt; indeed the system of husbandry, carried on at that period, naturally leads us to this conclusion.

Very little attention was then paid to the cleaning of the ground, and where this primary operation is neglected, no artificial plant can thrive well; so delicate a plant as the clover especially, is ill qualified to contend with weeds. The farmers of that period might conclude, not without apparent reason, that it was needless to put themselves to the labour and expense of rearing a delicate insignificant plant, which did not thrive half so well as those which grow in their fields without the trouble of cultivation. It seems likewise to have been an invariable maxim, in those times, to receive whatever the earth would yield, but to be at as little expense, in obtaining it, as possible. The very price of clover-seed would at that time be a serious matter; if it was sown at all, it would be sparingly, and that would contribute to render the advantage less, and the success more uncertain.

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* The immediate predecessor of Baron Hepburn, the present proprietor.

Whatever obstacles opposed the progress of this improvement, and at whatever time these began generally to give way, it is certain that no prejudices now exist on the subject. Artificial grasses are universally sown, and make a regular part of the system on every arable farm. The rotations, in which grass is usually sown, have been already stated in chap. 7, it is not necessary therefore to say any thing on that head here; but it may be proper to observe, that the utmost attention is necessary, and, in this county, is uniformly paid to have the ground completely cleaned, and reduced to as fine a mould as possible before the grass-seeds are sown.

The same grasses are sown here as in other well improved districts, viz. red clover, white clover, trefoil, rye-grass and rib-grass. When hay is intended, red clover and rye-grass only are used, of the former about 16*lbs.* and of the latter from two to four pecks, according to quality are allowed to the Scotch acre. When pasture is the object, white clover, trefoil, and sometimes rib-grass, are added, but, in that case, a part of the red clover is withheld, and generally more rye-grass bestowed. Whether hay or pasture be intended, particular attention is paid to the kind and quality of the seeds. It is justly esteemed a matter of great importance, not be at the expense of sowing grass, without endeavouring to secure the greatest advantage from it, and especially, since it is generally done for the purpose of ameliorating the ground, that trash be not sown, which it may afterwards cost much trouble to eradicate. It were better to pay a high price for fresh and unadulterated seeds, than to receive, for nothing, those which are either damaged or mixed. Clover has been seldom cultivated for seed here; it might be done, no doubt, but the uncertainty of our climate would render success extremely precarious, and often make the seed produced at home dearer, all things considered, than that which is procured in other countries.

In addition to what has been said, on the necessity of procuring good and clean seed, it may be remarked, that the pernicious root, which produces what is called *knot-grass*, was scarcely known here before the introduction of clovers. This abominable weed defies the plough and the harrow, and can only be conquered by the hand. Farmers are now generally, in this part of the country, become good judges of clean seed, and are in a great measure able to guard against the tricks which, it is said, were frequently played by seedsmen in former times.

SECT. III.—HAY HARVEST.

As very little land in this county is permitted to remain uncultivated, the quantity of natural hay cannot be great. The meadows, occasionally under water, are generally cut, but yield a coarse hay of small value. Some proprietors, who do not retain much ground in their own possession, cut a part of their natural pasture for hay; it is frequently obtained however at considerable expense, owing to the difficulty of winning it, and is seldom equally valuable with that which is procured from artificial grasses. It is in the Lammermuir district that the greatest quantity of natural hay is made; there, recourse must be had to this, as they need all that they can obtain for their stock, in hard seasons, and at such times the coarsest food is sufficiently relished. Natural hay of any kind, it may be said in general, is used more from necessity than choice; it is cut rather than suffer it to waste on the ground, or it is preserved because the article is needed, and better cannot conveniently be had. The unsettled state of the weather in the end of July and first of August, when natural hay is usually cut, and harvested, renders the different processes difficult and troublesome; but hay made from artificial grasses is usually managed under more favourable circumstances. The cutting generally takes place in the latter end of June and first weeks of July, when the weather is dry; and the nature of these grasses enables the farmer to mow and prepare them for hay with infinitely less trouble. In fact, unless with careless farmers, hay harvest in East Lothian is a very simple business.

If the weather be dry, the grass is usually turned the next day after it is cut, and put into small coils or cocks as soon as possible; often, when the crop is light, or rye grass preponderates, it is not turned at all, but raked together and cocked as fast as possible; from the cocks, when pretty well dried, it is sometimes collected into ricks, of a large size, where it remains till it be convenient to stack it up in the barn-yard. The cheapest mode is always adopted, when practicable, and that is to put the hay into large cocks at first, without tramping, where it stands till fit for the stack.

The wages for cutting grass vary from 2*s.* 6*d.* to 2*s.* 9*d.* per day and, when done by piece work, from

2*s.* 6*d.* to 4*s.* per Scotch acre, according to the strength of the crop. This work is often performed by the day, as it is commonly supposed to be better done; the mowers themselves also are more inclined to work in that way, because they find that they cannot make greater wages in the other, without excessive labour.

Owing to the drought which usually prevails over this district, in the early part of summer, the hay is generally light. Three hundred stones (of 22*lbs.* averdupois) on the Scotch acre is reckoned a very great crop, but this is gained only in some particularly favourable seasons; two hundred stones is accounted a good crop, and one hundred a bad one. Perhaps the average of the county, *communibus annis*, may not reach one hundred and fifty stones. It is not, by the best farmers, reckoned good management to sell hay unless when it comes very high; from this and the usual lightness of the crop, it often brings a very handsome price.

SECT. IV.—GRAZING.

As grass is cultivated, not so much for its own sake, as for the purpose of improving the ground and ultimately increasing the quantity of corn, grazing is only regarded as a secondary object. It is not by any means carried on to such an extent here as in the neighbouring counties of Berwick and Roxburgh, local circumstances being very different; still however a considerable deal is done, even on the best soils, where a regular system of management is observed. The practice is evidently on the increase; on the coast lands particularly, a good deal has lately been done, in the grazing way, where formerly all the grass was cut, and, at the same time, less sown than at present. While corn however finds a ready market, and fetches a reasonable price, this county, so much better calculated for corn than grass, will never rank high as a feeding district.

Both cattle* and sheep are fed, and not unfrequently on the same farm; perhaps the latter are rather most on the increase. As a great quantity of turnips is raised on all the dry lands, a considerable number of cattle and sheep are fed on them in the winter and spring. The extensive cultivation of this excellent root gives great advantage in feeding, besides the benefit which certain soils derive from it. Turnips are led off the field and given to cattle in the house or straw-yard; when eaten by sheep, they are sometimes consumed where they grow, and sometimes on an adjoining grass field; the former of these methods is the less troublesome, the latter, unless where the ground is very dry, the better perhaps for the sheep. Grass feeding is greatly aided by the extension of the turnip husbandry, as the stock, which has not been completely fed on the grass, can by this means be kept on till they are fit for the market. It is difficult to say how much stock is usually kept on an acre of grass; this must vary much in different years. The grass crop is liable to great vicissitudes according to the quantity of moisture imbibed, in the early part of summer; it becomes therefore a matter of great difficulty often, and occasions no little embarrassment, to

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* An ox, of the short-horned or Holderness breed, which had been bred by the late Col. Hamilton of Pencaitland and fed for some time at St. Clement's Wells distillery, was lately sold by auction at the sum of ninety-seven pounds ten shillings. He was purchased by a butcher in Edinburgh, and is said to have weighed

	Sts.	*Lbs.*
Fore Quarter -	166	12
Tallow - -	31	6

regulate the amount of the stock to be kept through the season. It is, by all judicious farmers, accounted best to fix the stock, at rather below than above, what the land might bear. It is better undoubtedly to have a few animals completely fattened, than a greater number half fed; and it may happen, that, by putting too many upon a field, a good crop of grass may be eaten without paying almost any thing to the grower. In ordinary years, an acre of tolerable grass may be supposed to feed an ox of thirty-two stones, Amsterdam weight, or three ewes and lambs or five wedders, supposing the wedders to be of the small Highland breed. In the Lammermuir district, many farmers do not keep one sheep per acre all the year round. Light stocking is now considered as the best method for improving the breed; indeed no animal, if it receives not sufficient food, can return a suitable profit, while it is much more liable to suffer by disease.

CHAPTER IX.

GARDENS AND ORCHARDS.

THE land appropriated either to sale, gardens, or nurseries is very inconsiderable, and is situated chiefly in the parishes of Dunbar, Haddington, and Prestonpans. Some proprietors have small spots of nursery ground, for their own use, but the extent is trifling; the principal supply in this article is obtained from Edinburgh.

There is nothing in the county that can merit the name of orchard; there have been some, however, in former times, as there are remains of them in different places, which have been suffered to become altogether unproductive. They, very probably, were neglected in consequence of having been found unprofitable; the culture bestowed on them was, perhaps, not very perfect, and the climate was, without doubt, unfavourable. The cold easterly winds which usually prevail here in April and May, must render orchards, if they were tried, frequently a losing, always an uncertain, concern.

The residing nobility and gentry all have gardens, some of them considerably extensive, and most of them cultivated with taste; hot-houses, green-house, and all the usual appendages of a modern garden, are common. Even the gardens of the farmers are, in many places, kept with much neatness, and furnished, not only with kitchen vegetables in abundance, but with the generality of the more common fruits. At the same time it must be admitted, that East Lothian is not and cannot be a fruit country, for the reason formerly stated; it is only in very sheltered situations, or on walls, that fruit trees will generally succeed, and, even in these cases, they are often destroyed in May, after the finest prospect of a crop.

Every cottage has a garden annexed, sufficient to produce the various common kitchen vegetables for the cottager's family. This class of people are remarkably attentive to the cultivation of their little spots, and derive great advantage from them, at small cost; the labour is entirely performed after their ordinary work is finished.

About Prestonpans, a vast number of cabbage plants are annually raised, which serve the greater part of the county, and probably supply a good deal beyond the limits of it to the west. These plants have so high a character, that scarcely any other can find a market while they are to be got. The soil, upon which they are produced, is a light, black, rich loam, of a quality considerably different from the greater part of the county.

CHAPTER X.

WOODS.

There are few extensive plantations in the county, nor is the whole quantity of wood produced in it very considerable. Every gentleman's seat, however, is more or less ornamented with plantations; indeed this seems to be regarded as a necessary appendage, and constitutes one feature by which the dwellings of proprietors may generally be distinguished.

In the higher district there are some woods, chiefly of oak, on the Marquis of Tweeddale's estates, supposed to be as old as since the usurpation of Cromwell; there are also some of oak, beech, elm, ash, and Scotch fir, said to have been planted about the time of the Revolution.

On some estates a little lower down, there are copse woods of dwarf oak, hazel, birch, &c. which seem to be the remains of wood, that probably, at an ancient period, covered the greater part of the south of Scotland.

The most extensive plantations, in the lower parts of the county, are on the estate of Tynninghame, the property of the Earl of Haddington; they amount to about 800 acres, and contain a great deal of excellent thriving timber, which yields a considerable revenue to the noble proprietor. These plantations extend almost to the sea beach, on a light sandy soil, and flourishing so well under such circumstances, seem to refute the commonly received opinion, that the sea air is injurious to timber trees. At Nenbyth, the seat of Robert Baird, Esq. a good deal of wood was planted about the beginning of the last century, much of it in hedgerows, after the English fashion. Sir Hugh Hamilton Dalrymple, and Sir Alexander Kinloch, Barts. have also a tolerable portion of wood on their respective estates; and on the estate of Broxmouth, belonging to the Duke of Roxburgh, a considerable quantity of valuable timber has been very lately sold.

In short, this part of the county may be considered as pretty well stocked, with what is called gray timber, though a doubt cannot be entertained with regard to the advantage which would be derived from planting some fields of soft moorish soil, with Scotch firs or beeches. Such lands, under the increased expense of labour, will not defray the charges of cultivation, and if left in grass, the pasture furnished by them is of little value. But the advantage to be derived from planting such soils, will fall more properly to be considered in another chapter of this work.

Mr. Sheriff, at Captain-head, has been in the practice of cultivating osiers for some time very successfully. In the winter of 1801-2, he planted upwards of seven acres, for which, in the following year, he received a gold medal from the Society for the Encouragement of Arts, Manufactures, and Commerce. From the materials which Mr. Sheriff has obligingly communicated, we are enabled to give the following account of his practice and success.

The plantation is situated in a bottom, sheltered from the north and west. The soil is a clayey loam of coarse quality. He supposes that, till about thirty-five years ago, it had been in the state of natural meadow, and considerable part of it subject to be flooded in the winter; it was freed from this inconvenience by a large open ditch. For several years previous to its being planted, it had been under the common rotation of crops, and sometimes laid to pasture, in an excellent state. The pasture, however, was always coarse, and the crops of grain, except oats, seldom valuable.

In spring, 1801, the ground was carefully underdrained, and after having been completely reduced by the plough, and well manured, was sown with turnip and ruta baga. The crop was drawn off in the months of October and November, and about the beginning of December the planting commenced, the ground having been previously ploughed and laid up in ridges or beds eighteen feet wide. The cuttings used for plants were supplied by a neighbouring plantation, and were of the size fit for hoops; these were cut to the proper lengths and put into the ground for two shillings a thousand; the distance between the plants was eighteen inches every way. The cuttings were struck off aslant, and pushed into the ground, at an angle of about seventy-five degrees, with the slanting face downwards, to prevent rain from lodging about the pith and rotting the stock. An inconvenience was experienced from having pushed the cuttings so far home that the tops of them were nearly equal with the surface of the ground, a number of young shoots, in consequence of this, sprung up, at and below the surface of the ground, which were much liable to be destroyed by grubs. Mr. Sheriff is convinced, from experience, that the cuttings should be from fifteen to seventeen inches long, and about four or five inches left above ground; this both saves from grubs, and affords an opportunity for cutting over the stocks afterwards, when they become too bushy.

On the month of May, the ground planted during the preceding winter was hoed over, and the surface moved to the depth of an inch and a half, at the expense of five pounds ten shillings. It was hoed again in June, for two pounds ten shillings, which rendered the surface remarkably fine and clean. The rains in July, and hot weather in August, brought up a number of annual weeds, and rendered hand-weeding necessary; this operation was performed by women and children chiefly, and cost one pound thirteen shillings. In consequence of some plants of the *ranunculus repens* making their appearance, it had another application of the Dutch hoe at an expense of seven shillings.

Mr. Sheriff states that he had plante about five statute acres, at two different periods, prior to his plantation of 1801. These have, one year with another, netted fully eighteen pounds ten shillings per acre. Four acres and a quarter yielded in 1801, for one year's growth, one hundred guineas, educting about two pounds seven shillings for trimming and hoeing the preceding spring.

The kinds of osiers, in Mr. Sheriff's plantations, are the *viminalis*, or common; a variety with dark coloured bark and slender shoots, more esteemed. Another sort which he had originally from Surrey; the leaves are large, long, sharp-pointed, serrated, of a bright green colour, and smooth on both sides; the bark is reddish where exposed to the sun and air; the shoots are thick towards the lower extremity, tapering to the point. A fourth sort is a valuable osier with bark of a dusky ash colour; the shoots, towards the lower extremity, have the appearance of being fluted in a longitudinal direction; the leaves are serrated, pale-green and smooth on both sides. A fifth kind much resembles the last described; its leaves are also a pale-green, smooth on both sides, and serrated, but narrower, smaller, and sharper pointed; its bark is not so dusky, it grows taller, and produces more shoots, which, though good, are rather inferior, especially to those of the third variety. Besides these, there is likewise a small patch of the golden willow, another of what is called the packthread.

The whole of these osier grounds are situated in such a manner as to admit of water being thrown over them, at a moderate expense. This circumstance Mr. S. regards as of great importance, and he founds his opinion on the peculiar luxuriance of a part of his plantation, to which water could always be given at pleasure. He does not however consider wet grounds to be necessary for this purpose, and stagnant water he thinks highly injurious.

The principal errors, Mr. S. is of opinion, into which the greater part of people have fallen, who have attempted to establish osier plantations, are: that of employing improper soil, such as peat earth and bog; imperfect preparation, or perhaps no preparation at all; planting of bad kinds; planting too thin; want of culture, particularly during the first spring and summer; allowing the shoots to be cut over, after Christmas and before the middle of March, this tends to weaken the stocks, particularly if frost succeeds rain while the wounds of the knife are not healed up. In order to rear the finest and most valuable twigs, the land must be freed from all stagnant water and chilling springs; and if the soil is not naturally of considerable richness, it must be rendered so artificially. It is necessary likewise to trim and dress the stocks from decayed wood, and to leave only so many buds as they may be expected to bring to perfection; weak and superfluous shoots should be taken off, and nothing left which is not likely to do well.

This pruning operation should be performed in November, or in the beginning of December, or deferred till March or April. The plantation must be gone regularly over, with a strong sharp pruning knife, and every stock examined and carefully trimmed, if necessary. The expense will be trifling if the stocks have been rightly trained at the beginning, and never suffered to get into a bad state through negligence. Instead of a great number of small and weak shoots, it should be the object to have none but such as are long and of good quality; an object which may be easily obtained, with proper care. Where plants have failed, their place should be supplied as soon as the plantation is cut over. For this purpose, cuttings of two feet and a half long should be used, allowing about eighteen inches to remain above ground. A greater length above ground than even this would be desirable, were it not for the danger of their being too much shaken, and having their roots loosed by the wind.

It seems to be of great importance that the ground be well prepared, either by a summer fallow or trenching, unless where a crop of turnips are taken, as in the case of Mr. Sheriff's principal plantation.

We have been the more particular in our account of this plantation, because where osiers are kept, it may be said generally, that they are rather permitted to grow than cultivated, and because, under such management as is here described, they seem capable of yielding a handsome profit. It is a kind of crop this, which can never be extensively cultivated, because the demand is not extensive; but, where it is tried, proper culture should be bestowed, else profit is not to be expected.

CHAPTER XI.

WASTE LANDS.

There is very little land in the lower districts of the county, which deserves this name; the far greater part of the commons were divided many years ago, in consequence of the Scotch Act of Parliament, 1695.

There still remains a small piece of common at Linton; but so inconsiderable in extent, and so poor in quality, owing to most of it having been pared in former times for covering to the neighbouring cottages, that it could scarcely deserve the trouble of dividing, were it not for the ugly appearance which it exhibits in the midst of a fine country. A division of this common, however, has lately been proposed, and, in consequence of some steps already taken, is likely soon to be effected.

A part of the common of Tranent was, till last year, retained in its waste state, for pasture to the cows of the village; lying on the great post road, and presenting nothing to the eye of the traveller, except furze and a few half starved cattle, it was truly a disgrace to the county. It has now, however, become the sole property of John Caddell, Esq. who last summer broke it up, in a very complete manner, with a strong plough and four horses; he has since let it to several tenants, who, it is to be hoped, will complete the improvement.

In the Lammermuir district there is a common, said to contain not less than 4000 acres, belonging to the royal burgh of Dunbar. It seems to yield no other advantage to the town than that of affording a holiday ride to the burgesses once in seven years, when they examine the marches. It does not seem clearly understood how far the right to this common extends. In former times all the proprietors of land within the presbytery of Dunbar were supposed to have a servitude upon it; and accordingly, during those months of the year, when the farmers had little to do, summer fallowing being little practised, they were accustomed to send their horses, from all quarters, thither to graze. No person now lays claim to that privilege, except the farmers in the immediate neighbourhood, and who pasture their sheep and cattle on it.

Some parts of this extensive waste seem to be capable of cultivation, but it is very probably condemned to perpetual sterility. It cannot, as is supposed, be divided but by the consent of all parties having interest, or by a special Act of Parliament for the purpose;* the former of these, it would be calculating too much upon the good sense and good nature of mankind, to expect, and the latter might cost more than the value of the subject.† In its present state it is worth little to any person; it may be doubted, whether it does not produce more hurt than benefit to the farmers, who send their

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* The Scotish Act of Parliament, 1695, for dividing commons, does not apply, some are of opinion, to those which belong to royal burghs.

† Since the above was written, a gentleman, whose situation affords him the best opportunity to be acquainted with the subject, has confirmed the account given of this commonty, in every thing, except that he mentions an opinion, according to which a division might be forced by the town of Dunbar.

He says, "I have found an opinion of Mr. Matthew Ross "upon the subject, who thinks that a process, for dividing the flocks to it. A little more rent may no doubt be paid for the neighbouring farms, on account of this supposed privilege; a temptation is at the same time held out to keep rather more stock on them than they can well support, while the number of animals sent to pasture on the common, renders it impossible for any of them to obtain sufficient food. These things have uniformly happened in the case of every common, where a *stint* has not been established, and there is no reason to suppose that the farmers, who live conterminous to the common of Dunbar, will escape evils which unfortunately have befallen all others, who were placed under similar circumstances.

" common, would be competent at the instance of the town of " Dunbar. A process was accordingly commenced for this pur- " pose, about 1796 or 1797, but no procedure followed.

" In a lease, granted by Sir James Dalrymple, of the farm of " Lawond to Andrew Turnbull, a right is conveyed of pasturage " over the common of Dunbar. I do not recollect the precise " words, but if it is thought worth while, you can get a copy or " extract of the lease from Mr. Frazer, by whom it was re- " corded in 1796 or 1797. I have heard it stated, that every " tenant, within the presbytery of Dunbar, has a right to this " common."

CHAPTER XII.

IMPROVEMENTS.

SECT. I.—DRAINING.

It is undoubtedly one of the first objects of good husbandry to free the ground from all superfluous moisture. Land can never exert its productive powers while it is drenched and chilled by stagnant water; it may be very desirable on particular occasions to be able to water a field, but very rarely indeed can it derive benefit from being permitted to remain in a wet state. Whether excess of moisture be occasioned by water stagnating on the surface, or lodging in the bowels of the earth, it must be drawn off before the farmer can derive full benefit from his land, or deserve the character of an expert husbandman.

Where the soil is wet in consequence of water remaining on the surface, it may in most cases be laid dry by a clear open ditch to receive the water, and well cleaned furrows to conduct it off. Particular attention, especially, is necessary to the furrows between the ends of the field and the ridges which run across; these ought always to be kept clear and open, both before and after the field is sown, and of sufficient depth to carry off easily all the water, which runs into them from the other furrows. This operation is performed with great care by every correct farmer in East Lothian. As soon as a field is sown and harrowed, the *gaw-furs*, as they are provincially called, are neatly and perfectly cleaned with the spade and shovel, if necessary, and if the furrows at the ends of the field are not sufficiently deep, they are dug to a proper depth, and left in such a condition, that after the heaviest rain hardly a drop of water stands in them. The water passes easily and gently along the ordinary furrows, and is conducted off the field by the principal furrow at the end, without doing the smallest mischief. This method of taking off surface water is so efficacious, and at the same time is executed at so little expense, that he is justly accounted a sloven who neglects it. Except where a level cannot be got for carrying off the water, and these cases are not very numerous, it must be the farmer's own fault if parts of his fields are flooded after every heavy shower. There is no single circumstance which will more readily draw down upon any farmer of this district the censure and ridicule of his neighbours, than the appearance of water collected about the ends and corners of his fields.

The water, which is contained within the land, must be carried off in a different manner. When springs burst out, it is occasioned by an interruption of the strata through which they pass. The first thing necessary, in this case, is to find out the direction of the spring, and cut through the stratum above the place where it is interrupted; the progress of the spring will then be stopped, and the water must be led off by a proper drain.

In this county the usual drains, and those which are reckoned the best, are filled with common land stones. When the drain has been dug of a proper width, and sufficiently deep to carry off the moisture completely, it is filled with small round stones, collected from the ground, to within from eight to twelve inches of the top; a covering of straw is then laid over the stones, to support the earth, and prevent it from falling in among them. The more irregularly shaped the stones are, and the smaller they are, so much the fitter for this purpose, as they suffer the water to percolate with facility, and at the same time do not afford room for the accumulation of such substances as might fill up the interstices. Great atten- is necessary to prevent earth from falling in among the stones: the length of time that the drain will answer its end depends very much upon this.

It frequently happens, that where drains are most needed, stones can hardly be procured in sufficient quantities; in this case thorns are often substituted, and while the wood continues fresh, they answer the purpose very well. They must be cut into proper lengths, and packed with great care, in order completely to answer the end. Perhaps the branches of some other trees might likewise be found fit for this purpose; the larch particularly, which is said to be almost incorruptible in water; in a drain its branches might last for an age. The only disadvantage perhaps attending it, for this purpose, is, that not being so crooked and irregularly shaped as the thorn, it might not preserve a sufficient opening. The scarcity both of stones and thorns in certain situations renders it worth while to try the experiment with the branches of various trees.

Drains are dug at all prices, from four-pence to eightpence per rood of six yards, according to their size and the nature of the ground. As they are now generally made larger than formerly, the ordinary rates may be sixpence and seven-pence. Small drains are esteemed unprofitable, for though cheaper in the first instance, they frequently become dearer in the end, as they soon fill up, and must either be renewed, or leave the land as wet as it was before they were made. The expense of filling depends upon the distance from which materials must be brought. The cost of drains, including every charge, may be from one shilling and three-pence to three shillings per rood; there are some which cost even more. The expense indeed is liable to vary according to so many circumstances, that nothing like a fixed standard can be assigned on the subject. It may be safely affirmed, however, that wherever this operation is necessary, and the land of a tolerable quality, the expense, though very considerable, will be repaid; at any rate, whatever may be the expense, the improvement ought not in any instance to be neglected.

SECT. II.—PARING AND BURNING.

These operations may be said to be almost unknown in this county; they have been tried, but to no extent, and with little advantage. The labourers are unacquainted with them, and consequently can neither execute them well nor on moderate terms; besides, our springs are too late, and frequently too wet, to admit their being done in proper seasons. It must be acknowledged likewise, that general opinion is against the utility of the practice, and were other circumstances more favourable, still it is probable it would not be adopted.

But in fact, paring and burning could not be extensively practised in East Lothian, for this strong reason, that there is seldom need for them. The ploughing of old coarse grass lands does not often occur, because, as has been already noticed, very little ground is kept long in pasture, that can be profitably employed in tillage, and new grass lands do not require these operations.

When land is broken up here, which in another part of the kingdom would be pared and burnt, it is sometimes immediately fallowed, but more frequently bears a crop of oats the first year, and gets a complete summer fallow the next. The former mode is necessary where the land is very coarse, but where it is capable of bearing a crop of oats, the latter seems preferable. The tillage which the ground receives when broken up, partly breaks the coarse turf, and that being buried during the course of a year, is considerably rotten, and becomes more easily and completely reduced in the course of the fallow, than it could have been during the first season. After the land has been completely fallowed, it is evidently as well reduced, and in as good condition for bearing crops, as it could have been put into by any other process. The only thing to be determined then on the comparative merits of this method, and of paring and burning, regards the expense attending the respective plans, the tendency which one of them may have more than another to waste the soil, the superior efficacy of either, to destroy grubs or other insects often numerous in old grass fields. It would be rather presumptuous to decide on these points in a district where only one of the systems is followed, and where their comparative excellence has not been fairly reduced to experiment. It might be desirable that a few experiments were tried, in circumstances perfectly similar, and with the utmost care and impartiality, in order to ascertain which of these methods is ultimately cheapest and most effectual; but, unfortunately, it generally happens that those who conduct such trials, suffer their prejudices to mislead their judgments, and the result is almost always in favour of the system to which they were previously attached.

SECT. III.—WEEDING.

This operation is of so much importance, in agriculture, that it well deserves to be treated as a separate branch of improvement; at the same time, it is so much attended to in East Lothian, as to merit particular notice in a survey of that county. The clearing of the land from weeds is so essential to good husbandry, that, if it be neglected, we may safely pronounce it impossible to carry on any other operation to advantage. The farmer who does not clean his land can never reap good crops from it, never so good, at least, as he might obtain. He may bestow plenty of manure, and he may reduce his ground to a fine mould, in order that his plants may readily extend their roots in search of the nourishment which he provides for them, but every weed left in the soil must take so much from the artificial plants which it is his object to rear. The natural inhabitants of the soil will have their full share of every benefit bestowed, if the strangers placed among them should starve. The manure bestowed, in such circumstances, may be regarded as in a great measure thrown away; one half of it would unquestionably produce greater effect if enjoyed exclusively by the useful plants. In truth, it not unfrequently happens, that very rich fields, over-run with weeds, yield much worse crops than others of a far inferior quality, which are kept clean.

There are some weeds, no doubt, in every field; in some fields they are extremely numerous; now, if for each weed of a considerable size, a stalk of corn would grow, how greatly would the fertility of any spot be increased by being rendered perfectly clean! Every weed that is removed leaves room either for an additional stalk of corn, or for those which grow, to be more productive. The very first object of the farmer then, should be to destroy every weed to the utmost of his power, and, in proportion as he renders his land clean, he may assure himself that his crops will receive the full benefit of all his labour and of all his manure.

Much praise is due to the farmers of this county for the attention which they bestow upon this essential branch of good husbandry. There are no doubt exceptions, but, in general, they are very careful to keep their lands clean, and it is not perhaps too much to say, that no district in Britain is superior to East Lothian in this respect. We need not hesitate to ascribe to this circumstance a considerable portion of that respectability which it possesses, both with regard to the quantity and excellence of its grain.

Of the varions operations for destroying weeds, the first, both in order and importance, is fallowing. No farmer, whose land has become foul, expects to have it completely cleaned by any other means. When a tenant enters on the possession of a farm which is in bad order, in this respect, his first object is to give it a perfect fallow as soon as possible; he begins with the fields in worst condition, and does as much every year as he can do well, till he has gone over the whole. The notion has been frequently entertained, and perhaps is held by some still, that fallowing is necessary for the purpose of resting the land; and it is upon this principle that fallowing has been often attacked. It seems indeed very absurd to talk of the necessity of giving land a rest, but this is not an absurdity chargeable upon the farmers of East Lothian. They never think of fallowing their land, when it is clean, in order to rest it; but, when it is foul, they are universally convinced that there is no other effectual method of getting rid of the perennial weeds.

It is not necessary, in this place, to describe the process of fallowing, but it may be proper to remark, that the efficacy of it depends entirely on the care with which it is conducted. Correct farmers consider it as an operation which must not be superficially performed; they endeavour to give the ground, intended for fallow, the first ploughing as early as circumstances will permit, and to repeat the operation till the weeds seem to be completely destroyed; the weeds are brought above ground by repeated harrowings, and are picked off with the hand; and, when it is found necessary, a heavy roller is used, for breaking the large masses which drought often forms in stiff land. By these means the far greater part of the weeds are destroyed, and, if the season be favourable, and the various parts of the process well conducted, it will not be necessary to repeat them for a considerable time. Many of the objections brought against the practice of fallowing are, in fact, occasioned by the slovenly manner in which it has been often performed. It is absurd to expect any advantage from it, if not done with attention. If care be not taken to have the ground well cleaned, it were better without doubt to sow it with something useful, and let it bear such a crop as it can.

The next means employed for cleaning the ground is, the culture of drilled crops. These are extremely beneficial as affording great facility for the destruction of annual weeds; considered in this light merely, independant of the other advantages attending them, they form one of the most important improvements in modern practice. At the same time, however, they are not so much ranked among the means of cleaning the ground, as of keeping it clean. They can never supersede the necessity of plain fallow, upon stiff heavy soils, but they may render the return of it much less frequent. On such soils, the culture of drilled beans, carefully horse-hoed, may keep the land in as good order for eight or nine successive crops, after a fallow, as it otherwise could be, for four. Even on light soils, which have become very foul, the only method of cleaning completely seems to be fallow, though drilled crops, rightly managed, may render it unnecessary ever afterwards.

Where fallowing is not necessary, and horse or hand-hoeing insufficient or impracticable, hand-weeding is not unfrequently employed. In the drills, where the plough or hoe cannot reach, the weeds are often taken out by the hand; and whole fields of broadcast white crops, which happen to be much infested with annual weeds, are sometimes cleaned in this manner.

When land is laid down in grass, a good deal of attention is usually paid to have it previously clean; but when thistles, or similar weeds, make their appearance in grass fields, correct farmers are very careful to cut them down, before they can shed their seeds. Where this very simple and unexpensive operation is neglected, a very abundant stock of these troublesome weeds is provided, to try the patience and punish the inattention of the sluggard, who omitted such an easy precaution. Too much attention cannot be paid to extirpate weeds or prevent their increase, and by the various operations of ploughing, hoeing, and hand-weeding, it may well be said that the farmers of this district keep their land in a very profitable condition.

If there be a want of sufficient care on any thing connected with this subject, it respects the borders and corners of fields, the sides of hedges, and other irregular spots, which are never touched by the plough; many weeds grow in such situations, and shed their seeds existence. Manure may with truth be regarded as the basis of good farming; it is that, which gives effect to every improvement; in proportion as it is neglected or injudiciously managed, husbandry must be in a bad state. The practice of former times was extremely defective on this point; in collecting dung, in preserving it, or employing means for rendering it fit for use, and in applying it to the ground, there was nothing worthy of praise or imitation.

Very little care was bestowed on collecting manure. There have not been wanting instances indeed, in which it seemed to be regarded as a nuisance that should not be suffered to accumulate. The corn fields were cut, even at no very ancient period, in such a manner as to leave almost a third part of the straw upon the ground. Within a period of thirty years, a great change in every thing which respects the management of manure, has taken place; its importance has become fully understood, and it is generally collected with much care. The crop is now cut with more attention by the worst farmers than it was formerly by the best; though there is certainly, on this point, still great room for improvement. It may be affirmed, however, that notwithstanding the increasing attention paid to the accumulation of this valuable article, the best farmers have not yet reached perfection. There are undoubtedly many substances and much refuse entirely neglected, which might be converted to useful purposes; it would be well worth the husbandman's pains to have every thing of the kind carefully collected and preserved; some of his inconsiderate neighbours might divert themselves with his minute care about a subject not reckoned very dignified, but they would soon be convinced of the propriety of his conduct. The most careful of modern farmers are yet far behind the ancient Romans in this respect, who, we are told, collected every weed, the leaves of trees, the rakings of the highways, the sweepings of their houses, the scourings of their ditches, every kind of refuse, and even earth of an inferior quality, all of which were carried to their dunghills.

When manure is collected, it must not be supposed that it requires no further attention; a great deal may be done to hasten the process of putrefaction, and, if this be neglected, the article may be carried to the field in a very imperfect state, as frequently happened in former times. The dung was suffered to lie where first laid when carried from the cattle, till the carts arrived to carry it to the field, and consequently a considerable part of it was of little use; now it is carried from the yard, piled up in separate heaps, and, by being turned occasionally, rendered generally and equally fit to be used to the greatest advantage.

On the light soil of this county, where turnips are taken as a fallow crop, the dung is rarely applied except it be completely rotten; but, in such situations, this can be effected with the greater facility by means of the cattle kept to consume the turnips. On clay and heavy loams, where turnips cannot make a part of the rotation, and where wheat and beans are raised to a considerable extent, the management of the dung process is a much more serious business. In such cases, it is usual to keep lean cattle in the fold yard to consume the straw, or at least to tread it down; from the yard it is carried during wet or moist weather to an adjoining piece of ground, and mixed with dung of a richer quality to hasten the putrefaction; the yard is emptied in this manner as often as possible, and the heaps thus formed are repeatedly turned, and often, in dry seasons, watered. After all, it is sometimes impossible to rot the straw sufficiently in one season, and therefore the application of it to the land must be deferred till the next. It is fortunate, however, that clay soils are not so delicate as those which are fit for turnips, and can digest manure in a much less perfect state.

With regard to the manner of preserving dung, it were certainly desirable not to have it, as is often the case, lying in the centre of the farm offices; besides, that it must certainly be injured by this treatment, it cannot fail to be liable to considerable waste, by being carried about with the feet of the cattle in passing and repassing. Exposure to the sun and atmosphere is likewise very injurious; a great deal of the most valuable particles are continually carried off; it is certain that manure might be so long exposed as to become a mere *caput mortuum*; the least exposure then must hurt it, to a certain degree. It seems possible to remedy this evil, or rather prevent it, in some measure, by erecting a kind of sheds, to which the dung might be directly carried from the fold-yard, and which might serve to protect it from the action of the sun and wind. Sheds for this purpose might surely be erected on such a plan as to produce considerable advantage, and not cost more than they would amply repay.

Very much attention is now bestowed upon the application of manure. At one period, the quantity of manure bestowed was very great; perhaps triple the bulk, certainly double, of what is now applied; and, as the quantity upon the whole was not equal to what is now accumulated, the consequence was the surfeiting of one field and starving of others. It was spread with equal carelessness; in some places it could not be buried by the plough, in others there was almost none. The practice now, generally, is to spread the dung fresh from the cart, both because it is more easily separated, and done at less expense. This plan, however, is not universally followed, particularly on small farms, where a sufficient number of hands is not kept to carry on various operations at once. Whether manure be laid down first in heaps, however, or spread immediately from the cart, great pains are taken to lay it on equally. From ten to fourteen cart loads, about one ton each, are laid on the acre for turnips; for wheat, upon clay lands, rather more is usually allowed; there are some farmers who considerably exceed these quantities.

A good deal of dung is purchased by the neighbouring farmers at Dunbar, Haddington, Tranent, &c. even some who live in the western parts of the county purchase it at Musselburgh; much benefit is often derived from this foreign manure. It has however been remarked, that many of those who do most in this way, are not most attentive to the cutting of their crops low, and to other means of accumulating manure at home.

All the farmers of the sea coast, from the eastern boundary of the county, at Dunglass-bridge, to the western at Ravenshaugh-burn, derive considerable benefit from the sea weed *(Alga Marina)*, but especially those situated betwixt North Berwick and the Eastern March, where it is obtained in the largest quantity and of the best quality. This is an excellent manure for light soils, but it is not thought to be so beneficial for clays; perhaps this opinion may be partly occasioned by the circumstance, that it is generally in wet weather that the weed comes ashore, when clay lands cannot bear horses and carriages without injury; it must always accordingly receive this manure under a disadvantage. The sea weed does not operate so long as other manures; it seldom lasts above two years.

Lime has been regarded by some as a *manure*, here it is accounted a *stimulus*, which can be profitably

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applied only, where the soil previously possesses some dormant principles of fertility that need to be roused into action. The *modus operandi* of lime, seems in fact not to be perfectly understood; the greater part of practical agriculturists, however, seem now to be pretty well acquainted with its effects, and know how to apply it with advantage. Every farmer knows that land which has been long in grass, or contains much vegetable matter, will abundantly repay him for the trouble and expense of liming, and that the quantity bestowed should be in proportion to the strength of the soil. On these points all are agreed, because they have been confirmed by the fullest experience, and experience is a better guide than the most approved theories.

Limestone abounds in many parts of this county, particularly in the parishes of Saltoun, Gladsmuir, Aberlady, North Berwick, Preston Kirk, Dunbar, and Innerwick, where quarries of this substance have been wrought from time immemorial. It is the general opinion that the whole of the lower districts have received this article; an opinion, which is confirmed by the circumstance, that some of the old tillage lands which have not been renovated by grass, have not received advantage from modern applications. This idea, however, was more prevalent some years ago than lately, of course the extent of ground annually limed has constantly increased; with this difference, that a larger dose is bestowed. The quantity applied to the acre of light soils may, on an average, be forty-five bolls, or two hundred and seventy Winchester bushels, of hot lime from the kiln; the expense, carriage included, may amount to about six or seven pounds. On clay soils, sixty bolls, or three hundred and sixty Winchester bushels are commonly given to an acre, and the expense is in proportion.

A good deal of lime is used mixed with earth. The basis of such composts is, the rich deep earth of headlands, scourings of ditches, quickens gathered off the fallow fields, &c. It has been ascertained that lime will operate, in a compost, where it would be useless, laid on by itself. This may easily be accounted for, from the new soils or articles used as a basis for the compost, being in a fresh or virgin state, and therefore readily affected by the lime; when the whole mass is set in motion, its virtues may at once be communicated to the soil covered with it. A large quantity of this mixture is necessary to produce any considerable effect; less than fifty two-horse cart loads, per acre, cannot be applied with success, and the quantity of lime given to this must be equal to one half of what would be given in a pure state. On these accounts compost is not a cheap manure, especially if carried to any distance, but it is generally successful.

SECT. V.—IRRIGATION.

It is, perhaps, only in grazing districts, that this practice can be regarded as an improvement; grass may certainly, in many cases, be greatly benefited by flooding; but it may be doubted whether land, regularly under tillage, and where it is an object of so much importance to draw off all superfluous moisture, can derive much advantage from being occasionally under water. Irrigation could not therefore, it is probable, yield much benefit to the greater part of this county; one thing is certain, however, that it has not been tried.

East Lothian is by no means favourably situated for this practice, even if it were proved to be favourable to the system of husbandry pursued. Our streams are not numerous nor considerable, and the face of the country is so uneven, that they could rarely be employed for watering any land except some small spots upon their margins. In a few places, it could be tried without great expense, and it might be desirable that some public spirited person would make the experiment, in order to ascertain the advantages of it.

It is in contemplation, just now, to try flooding on some links by the sea side at West Barns, near Dunbar. Whether the place, either in respect of soil or command of water, be judiciously chosen for the experiment, it remains for time to determine.

CHAP. XIII.

LIVE STOCK.

THE practice of East Lothian, in this department of husbandry, does not present much that can be generally interesting. Grazing, in nine cases out of ten, is carried on only as subservient to tillage, and therefore held a secondary object by cultivators. Many cattle are fed, but very few reared, in the county. Almost every person who practises the sheep husbandry, in the lower districts, buys and sells within the year. Some recent attempts have been made to keep flocks of full bred sheep, and there is reason to believe with considerable success; but, taking the county generally, such attempts are of little importance.

SECT. I.—BLACK CATTLE.

Every farmer keeps a small number of milch cows, but few keep more than are sufficient to furnish a regular supply through the whole year, of milk, butter, and cheese, for their own families. The same attention accordingly is not paid to the kinds of cattle, as in other districts, where they form a more important object of farm management. The main thing attended to, is what kind will return the greatest quantity of produce; and accordingly, when a farmer has a good cow in this respect, no matter what her appearance or of what breed, he endeavours to rear some calves from her, to supply the place of those which are occasionally falling off by age or accidents. Any thing like uniformity of breed therefore is not to be expected. The kind most generally prevalent is a cross from the Dutch or Holderness breed. There was a breed pretty general once in the county, but now become extinct; they were of a small size, feeding to twenty or twenty-five stones, Amsterdam weight, of a black or dark brown colour with a rough strong coat. These were handsomer and hardier, than the mixed breed which has supplanted them, but yielded less milk. As the general practice is to support a cow, summer and winter, for every servant who keeps house, the number of milch cows is much greater than in other corn districts where this practice does not prevail.

A very considerable number of black cattle are purchased annually at Falkirk, at Hallow fair, in Edinburgh, and other markets, to be wintered in the fold-yard, or fed on turnips in the house.

Cattle kept for the dairy, or fed for the butcher-market, comprehend all that are to be found in the county; none are employed in labour. Every part of farm-labour, in which beasts are used, is executed by horses. At an early period, it is probable that oxen were generally employed for labour here, as there is reason to believe they were over all Scotland; but it has been remarked, that they have been laid aside exactly as modern improvements in agriculture have advanced. In this county an ox has rarely been seen in a plough or a cart for many years, and all that has been done by reasoning or experiment in other quarters to bring them in fashion, cannot convince any of our farmers, that the change would be for their interest.

It would be improper, as was remarked on another subject, to attempt the decision of a question, when our experience reaches only to one side of it. It is impossible, however, not to be struck with the fact, in considering the comparative merits of horses and oxen for labour, that the latter have gradually disappeared as a more improved husbandry advanced. To an ordinary observer, this single circumstance would appear decisive of the question; still it must be admitted, that it does not place the matter beyond dispute. A fashion may be introduced somewhat unaccountably, and fashions are often not easily abandoned; but it must be allowed, at least, to afford a strong presumption, which it would require pretty strong arguments to balance. An individual may have very erroneous views of his own interest, and it may be impossible to undeceive him; but it rarely happens to be the case, for a long time, with the great majority of a numerous body. It might have been said the whole of a numerous body, with regard to this county, for there is not a single voice in favour of oxen, at least judging from practice, which is the surest test of a person's true sentiments.

SECT. II.—SHEEP.

Sheep were at one time more numerous in this county than at present. Within the remembrance of persons not very aged, there were sheep-walks in all parts of it; these, at an after period, gave way to a more extended tillage in all the lower districts, and this branch of husbandry was almost confined to Lammermuir. Within these few years sheep have again come much into repute, and are kept in considerable numbers every where, especially on the coast lands. Permanent flocks, however, and regular sheep management, may be said to be almost confined still to the higher parts of the county. In the low country they are kept chiefly to eat the turnips, and sometimes sown grass, which is permitted to lie a year or two for pasture. Flying flocks therefore are generally kept, and as soon as they are fattened for the market, which is usually within the year, they are sold off. A considerable number of lambs likewise are reared, only so far however as to render them fit for the butcher.*

As the great object, in the lower districts, is feeding, little attention is paid to particular kinds; every farmer keeps those which he thinks are likely to pay best for the food which they consume. The black-faced, or Tweeddale breed, are most generally preferred for feeding on turnips, because they are most esteemed in the market; but many of the Cheviot breed are likewise kept, and even some of the improved Leicesters.

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* In the original survey of the county, an account is given of a sheep, bred by Mr. Sheriff, at Captainhead, which was killed in Haddington, in Autumn, 1791.

	lbs.	*lbs.*
Live weight, at 16 oz. to the lb. - - - - -		295
Carcase, including kidney fat, - - -	193	
Tallow, exclusive of kidney fat, - -	30	
Wool, - - - - - - - -	17	
		240
There remains therefore for the head, feet, skin, and other offals, - - - - - -		55

The fat, immediately behind his fore-leg, was five inches over, and on the rib four inches and a half. This sheep was remarkably small boned for his weight; his age was two years and a half.

As it is only in the Lammermuir district that sheep-husbandry can be said to be regularly practised, it may be proper to give some account of the management there. The following information is furnished, in the original survey of the county, by Mr. Hay, of Hopes.

"All store farmers of any extent keep two flocks, viz. one of ewes, and another of yeld sheep; and this flock they sometimes divide, and have a flock of what is called *hogs;* that is lambs of one year old.

"The common practice is to fold the ewes upon a break of arable land, during the summer; they cut the lambs about the 26th of May, and they wean them in the first week of July, and then they shear the whole flock.

"The lambs, after weaning, are sent to a healthy pasture, called the *birn*, which has been kept for them, where they remain till the end of August, when they are moved down to the best low pasture, called the *hog-fence*, which has been saved from the weaning, and here they remain during the winter.

"The ewes are milked for about eight weeks after the weaning, and sometimes longer; and then are put out with the lambs, into the *hog-fence*, for the winter.

"All the sheep are smeared, that is salved, immediately after the harvest, at the rate of two pounds, tron weight, of butter, to a Scotch pint of tar, which salves from six to eight sheep, at the expense of about five-pence each.

"The wool sells at from five shillings to eight shillings per stone, tron weight; and usually takes from six to eight fleeces to a stone; so, deducting the expence of salving, the net proportion upon the wool may amount to from eight-pence to ten-pence per head, sometimes a little more or less, varying according to the price of wool.

"Upon dry heathy grounds, the ewes are drafted and sold to graziers, in the month of March; but upon wet grounds, which are dangerous, and subject to the distemper called the rot, they are drafted and sold in October.

"Few storemasters (*i. e.* tenants) in Lammermuir breed as many sheep as keep up their stock; so they have to buy yearly a parcel of hogs, which are mostly wedders. Linton, in Tweeddale, is the great market for these wedder hogs. These wedders they keep for two years, and sell them to the feeders.

"Some of the most judicious storemasters have totally given up the practice of milking the ewes, after weaning; and others milk for a shorter space than formerly; and they now allow the lambs to suck longer, which considerably increases their bone, and is thought not so pernicious to the ewes as the milking.

"The method of managing the arable land, in this district, has been changed much for the better within these few years; when in grass it is folded, and when taken up, it gives three crops; and is then fallowed and sown out, the first crop, with grass-seeds; and they generally follow the same practice with the new grounds taken in by fallow and lime, which has now become a general practice through Lammermuir; and lime, when applied to dry ground, is certain of making a lasting improvement upon the grass, which is, and always ought to be, the great object upon store farms."

It is necessary to remark, with regard to the above clear and correct statement, that it was written ten years ago, therefore, several particulars which it contains, cannot apply altogether to the husbandry of the present day. In fact Lammermuir husbandry has improved equally fast with that of other districts, and is now carried on in a very systematic manner.

The kind of sheep bred, and most generally kept, in Lammermuir, is the black-faced, or more properly what is called the *brocked*-faced, a sort of dirty looking mixture of black and white; they are for the most part horned: when they are fed, the wedders weigh from ten to twelve pounds per quarter, and the ewes from eight to ten on an average. It will take eight or nine fleeces of the ewes and hogs, six or seven of the wedders, to make a stone of seventeen pounds (twenty-two ounces to the pound); the quality, and consequently the price, varies much. The difference of quality may result from various circumstances; it is owing partly to the quantity of tar put upon the sheep in salving, partly, it is supposed, to the situation in which they pasture, as those which feed on high grounds and coarse mossy herbage, are thought to have inferior wool, and partly to the general attention and care which farmers bestow upon their flocks, in which some are greatly superior to others.

The Bakewell breed has been tried in this district, but not extensively; indeed it does not seem well calculated either for the nature of the climate, or the quality of the food. These sheep are thought to be too delicate, for encountering the severities of weather often felt in these bleak situations, or for enduring the fatigue necessary in procuring their food; owing to this, it has been imagined, that the carcase is even less than that of the common breed, and the quantity of wool not greater.

The Cheviot sheep were introduced into this district several years ago, and are kept with advantage in many places. It is not the general opinion, however, that they can ever universally supplant the native breed, or even become equally numerous, with profit. The comparative value of these two breeds, for Lammermuir, cannot be said to be yet fully ascertained; each kind has its advocates, who are warmly attached to their respective systems, and each kind is, no doubt, recommended by some peculiar excellencies. It is very probable, that neither the one kind nor the other should be indiscriminately recommended for the whole district. There are unquestionably some situations much more bleak than others, and some pieces of pasture of a greatly inferior quality; a highly improved and valuable breed of animals, in such places, might prove less profitable to the possessor, than one of much less intrinsic value. This is a circumstance so obvious, that one would think it could never be overlooked in discussions of this kind, yet it is probable that it has not always been sufficiently kept in view. When experience has fairly decided on the subject, and overcome prejudice on all hands, it will probably be found that the Cheviot breed are to be preferred, in many situations, while in others, the black-faced are most profitable. At all events, the only question for the farmer to determine is, what kind will best repay his capital and labour. The *amateurs* of good eating have sometimes endeavoured to settle the point, by referring to the quality of the mutton; if this principle were admitted, the black-faced sheep would carry it with hardly a dissenting voice, but the farmers will not easily believe, that they are bound *patriotically* to furnish good mutton to the country, if it shall lessen their ability to eat a bit of mutton at home.

The black-faced sheep seem to be capable of very considerable improvement; it does not indeed appear that much has been done for improving that breed, which certainly places them in an unfavourable situation, when their merits come to be discussed in opposition to others which have received great attention. There can hardly be a doubt, that the weight of the carcase and the quantity and quality of the wool might all be increased, by sufficient care to select the strongest, healthiest, and best feeding, among them, for the purpose of breeding. It has been observed, that those, which feed best, have the greatest quantity of wool, and generally of the best quality; it is natural to suppose, that it should be the case, as they must be healthiest and strongest. One great disadvantage, under which the farmers in this district labour, with regard to improving the breed of their sheep, is, that as they seldom feed them, they have it not in their power to select the best feeders for breeding. They labour under another disadvantage in the want of enclosures, which prevents them from having it in their power to separate their flocks, in the manner necessary towards making experiments effectually. It might be highly beneficial to hold out encouragement to those, who should produce the fattest and best wooled rams of the black-faced kind; and there cannot be great doubt that the farmers would soon be disposed to hire them.

SECT. III.—HORSES.

What has been said, with regard to other kinds of stock, will apply also to horses; very few are bred in the county, not perhaps one in a dozen that are kept. It is the general opinion, that, in a district so well calculated for raising corn, it is more profitable to purchase horses, ready for work, than be at the trouble and expense of rearing them. The farmers here are supplied with this part of stock, chiefly from the dealers of Ayrshire and Lanarkshire, who collect many of them in these counties, and procure not a few from Ireland.

The horses generally kept are of that moderate size which may be considered as equal perhaps to any others for combining strength with activity. They may be stated, generally, to be about fifteen or sixteen hands high, and strong built. Many teams are well matched, very handsome, and capable of great exertion.

These useful animals receive much attention, and, by the greater part of farmers, are kept in excellent condition; indeed the man must egregiously mistake his own interest who neglects them; it is no trifling business to replace an animal, at thirty or thirty-five guineas, the usual price of a good horse; it is of great importance therefore, that they be not lost by carelessness or bad management. In fact, horses may be regarded as the *primum mobile* in all agricultural operations, upon the quality and condition of them a great deal depends.

One will hardly be at a loss to determine the character of a farmer, from the condition of his horses. Very fine high fed horses, exhibiting an appearance of being prepared for the market, may rather suggest the idea of idleness than of labour; but, on the other hand, lean spiritless creatures, worn out by toil and hunger, are the certain indications of a bad farmer, of one who is not thriving, and does not deserve to thrive. The man, who uses bad instruments, cannot have his work well done; and one important and primary step towards good farming, is to keep the labouring stock in good condition. Horses, regularly fed and regularly wrought, will perform a great deal of labour, without falling off, either in strength or appearance; it is of great importance, therefore, to distribute the labour as equally as possible, through the various seasons of the year, and if, as must sometimes be the case, an extraordinary exertion ought to be made, they are in a proper condition for making it. When horses do fall off, it requires much more to restore them, than might have kept them in a good state.

SECT. IV.—HOGS.

These animals are kept in considerable numbers in this county, though the flesh of them does not form a general article of food here. They are reared by many persons as any article of trade; but the principal market for them is Leith and Berwick, where they are chiefly used for victualling ships. The places where they are extensively kept, are distilleries, starch-works, mills, and breweries. Every farmer keeps a few, chiefly for supplying his own table, and the generality are able to sell some annually. Farm servants too, who have houses, are generally allowed to keep a pig for each family, which adds greatly to their comfort.

It was very common, some years ago, for the people in the villages to keep pigs, but they have now given up the practice; they could not feed them completely, without giving them a little corn, and the high price of that article, during some late years, put it out of their power to procure it for that purpose. It does not appear, indeed, that hogs can be profitably kept in any situation, where they may not be almost entirely fed on what would otherwise be lost, especially in a district where they are not much admired as food, and consequently not much in demand.

SECT. V.—POULTRY.

This is another branch of live-stock, kept to a greater extent perhaps than is consistent with good management. The common barn-door fowls can never be kept, without a positive loss, beyond the number sufficient to pick up the lost grain; it will be impossible to feed them in any manner, but they must cost a great deal more than they will be able to pay. At certain periods of the year, they must either be kept up and fed with the hand, in which case they will soon consume more than they are worth, or they must be permitted to wander among the corn fields, where they will do incalculable mischief. Farmers should endeavour to diminish the number of these unthrifty creatures, as far as possible, and the country is interested in their success. Poultry, no doubt, furnish a delicacy, which it is very desirable to see at the table; and, probably suffering the judgment to be guided by the palate, people sometimes recommend the increasing them, and lament any measure, which tends to a diminution; it does not seem very wise, however, till we can produce a superabundance of necessaries, to recommend luxuries, by which the quantity of necessaries must be lessened. It is not perhaps understood by the advocates for poultry, that they consume three times as much food as they produce.

Farmers are generally bound to furnish a certain number of what are in Scotland called *kane-hens*; they, on the other hand, demand a certain number from their cottagers. It may safely be affirmed, however, that, as far as depends on the farmer's choice, he ought not to keep them, and cannot keep them without loss, till the price be such as to pay for keeping in a state of confinement.

Geese and ducks are likewise kept, but not in great numbers, though they appear to be more profitable than the other; their food consists much in grass and insects, consequently as they do not cost much for food, they are likely to yield the farmer a better return.

SECT. VI.—PIGEONS.

If poultry never yield profit, pigeons in every case occasion positive loss. This bird is not indigenous in Britain, and the husbandman would have no cause of regret, if it were yet confined to its native country. He can hardly be subjected to a greater plague than the near neighbourhood of a large pigeon-house. It may serve for a striking proof, among others, of the wisdom and sagacity of our forefathers, that they enjoined by Act of Parliament the lords and lairds to make deer-parks, cunningaries (rabbit-warrens), and dovcots (pigeon-houses). Before that time, they had enacted, that the breakers of orchards, stealers of fruit, and destroyers of cunningaries and dovcots, should pay a fine of forty shillings to the king, and an assythment to the party skaithed. It was afterward enacted in the reign of James the Sixth, that no person should build a pigeon-house, who had not land around it, or within two miles, which yielded ten chalders of victual.—There had been no great harm in allowing proprietors to erect pigeon-houses, provided, on the other hand, every person had been allowed to protect his property from the depredations of the pigeons, by every means in his power; but these creatures are understood to be a kind of privileged thieves, which you dare not punish, though you see them destroy your property before your eyes. If a poor man, with a starving family, be placed in such circumstances, that he finds himself forced to take a little of your property to preserve life, you may get him hanged; or, if you detect him in the the theft, and he refuse to surrender, you may shoot him. * If you find a flock of your neighbour's pigeons destroying twice as much, you must not kill one of them; you may follow them home, if you please, and complain to the owner, he will laugh in your face. You can arrest his cows or his horses, till you are satisfied for the damages which they have done; but against his pigeons you are allowed no protection, except that of being permitted to prevent them, if you can, from lighting on your fields.

An action was brought in this county, a few years ago, against a farmer for shooting pigeons, and the issue was looked to with much interest, as a matter of general importance. Great expectations were formed, that it would have determined, whether the farmer may protect himself from this description of thieves, as well as from any other; owing to the multiplicity, the ambiguity, and inconsistency of our old Scotish laws, something, it seems, may be said on both sides. These expectations, however, were completely disappointed, for our Court of Session, as usual, founded their decision

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* It is not meant to insinuate, according to the cant of some modern philanthropists, that theft should not be capitally punished. If a man ought to be hanged for taking my life, why not also for taking that on which my life depends? There would be no living in a country like this, where trade exposes so much property continually to the covetous, if the gallows did not protect it. But if the gallows very justly protects our property against human thieves, why should not something similar protect it against thieves of another species!

upon the specialties of the case, and left the general question where they found it. A process of declarator seems to be the only way to have the point determined, and it would be well worth while for the farmers of the county generally, to join in such a measure.

The pigeon-houses in this county are rather on the decrease; fifty years ago they yielded a pretty considerable return, to those that kept them, but, within that period, the number of houses has diminished, and the produce of them perhaps still more in proportion.—Different causes have been assigned for this decrease; perhaps it may be owing, in part, to the destruction of weeds, from the seed of which they derived a part of their support; and in part, to the prevalence of winter ploughing, which buries that grain left on the ground in harvest, from which they derived a considerable portion of food in the severest part of the season. It is probable, however, that the principal cause of their decrease is to be found in the general conviction that they are highly injurious, and ought to be discouraged; they are suppressed therefore by every means short of directly killing them, and every one knows, that if animals be even neglected, they are not likely to thrive.

Pigeon-houses are frequently let to the tenants, with the lands on which they are erected, and it is not easy to conceive an idea of a more preposterous tax. It would be much about as wise to demand rent for a fox's den, kept in the farmer's neighbourhood to destroy his poultry, or to oblige him to furnish a house to a family of thieves, who should live by pilfering his property. He has the young pigeons for his rent, no doubt, but a farmer, who understands his interest, would rather destroy the pigeons the first day of his lease, and continue to pay the rent of the house for nothing, provided all his neighbours would do the same; but it would answer no good purpose for an individual to do this, and continue to feed the flocks of his neighbours.

It is probable, that if farmers so circumstanced would come to a proper understanding among themselves, and offer their landlords a continuance of the same rent, they might obtain permission to pull down the houses, and destroy their inhabitants. In this case, it would be necessary to prosecute those, who have no right to keep pigeon-houses, and to kill their pigeons wherever found doing injury. It is incontrovertible, that no individual farmer could be a loser by the extirpation of these creatures, and the public would gain more than any one can imagine, who has not seen a flock of pigeons, of perhaps above a thousand, down in a body upon a field of wheat ready for the sickle; or, at other times, burying themselves in ricks of peas, which have been uncovered by the wind. It has been said, and very probably the calculation is not overstrained, that every pigeon eats his own weight of food in a day; what a prodigious waste then must they occasion, when they obtain as much corn as they can eat!

SECT. VII.—RABBITS.

There are not many rabbit-warrens in the county, though there is a considerable extent of ground very fit for the purpose; indeed they might do extremely well upon almost all the coast, through the whole extent of the county; but whether it would be profitable to employ all the ground, capable of it, in this way, is a different question. Much of the land on the coast, which formerly would have been thought unfit for any thing, except rabbit-warrens, is now cultivated to some advantage, and bears tolerable crops of turnips and rye. It is evident, that land, capable of this, could not be profitably abandoned to these animals.

The proper places for warrens are those knolls of dry barren sandy soil, which either could not be ploughed, or would not be worth the trouble; and wherever rabbits are kept, they should be completely separated from all cultivated fields, otherwise they become a great nuisance; if they have access to growing corns, they assuredly destroy far more than their value. It is with these creatures, as with some others, where people are not sensible of what they consume, the price obtained for them is considered as all profit; but it is probable, that, in most cases, a rabbit, which sells at fifteen-pence, costs the public half-a-crown.

SECT. VIII.—BEES.

These insects seem not to be so numerous in the county, as at some former periods, and perhaps, even in proportion to their numbers, yield less honey. It is certain, that in the course of a few years, the number kept has much diminished in particular places, probably over the whole county, and persons, who had kept them long, have given them up as unprofitable. This decrease seems to be owing to an improved system of husbandry. In this case, as perhaps in many others, facts are in opposition to theory, for one would naturally imagine, that the extensive cultivation of clover and bean crops would be more in favour of bees, than any part of the new practice could be against them; experience, however, says otherwise. The clovers certainly produce a superabundance of food for them, during one part of the year; but the weeds, which were formerly permitted to grow in the corn-fields, and in pieces of old pasture ground, with the tracts of furze and broom, furnished a more regular and permanent supply.—Honey, however, is not a necessary of life, and if, by the extension of tillage and destruction of weeds, we can raise more corn, and feed a greater number of cattle and sheep, we shall not have reason to lament the decrease of bees.

CHAPTER XIV.

RURAL ECONOMY.

SECT. I.—SERVANTS, LABOURERS, &c.

FROM the regular and perfect manner in which all rural operations are performed in this county, it may naturally be inferred, that the labourers are very expert; it may be inferred too, that the connexion between master and servant is well regulated. The inference is just in both points; there are not perhaps in the island more active or correct labourers, than the farm servants here, and certainly none more sober and respectable; and this may, in a great measure, be ascribed to the terms on which they serve.

Those servants, who lodge in the houses of their masters, are, generally speaking, on the same footing here as in other places; there is nothing, with respect to them, which merits particular notice. Their wages are from ten to fourteen pounds per annum. A small proportion of farm servants, however, belong to this class; married servants are uniformly preferred; those, who reside in their master's house, are, in many cases, not employed in regular labour, but perform that sort of extra work and kind of household drudgery, which requires some hands on every considerable farm.

The far greater part of the regular labour is performed by married servants, called *hinds;* a class more numerous here than in other districts. These dwell in houses provided by their masters, and receive their wages, wholly or chiefly, in kind; the circumstances are so comfortable, under which they are generally placed, as to secure a full supply of such servants at all times. Indeed it is universally considered, and certainly is, an object of great importance to have a sufficient number of servants for working the horses. They are more steady generally than young men; their familes, and the property which they have acquired, give them a sort of interest in their situation, and afford some security for their continuing longer in their place.

The hind occupies a house, provided by his master, for which his wife works in harvest; he has a cow kept all the year round, generally ten bolls of oats, three bolls of barley, two bolls of peas, all of the best quality upon the farm, seed corn excepted. He has likewise one peck of flax-seed sown, and about the sixteenth part of an acre of ground, well prepared and sufficiently dunged for planting potatoes; his fuel is carried; he has his victuals during harvest, which is always four weeks, sometime six, and when he carries corn to market, he has an allowance, provincially called *mags*. Those, who are employed in sowing and building the corn-ricks have, besides the ordinary wages, a pair of shoes and half a boll of wheat. On all well managed farms, the labour is carried on regularly at set hours: and though it is not understood, that servants, who work horses, are absolutely exempted from extra work, yet they are very seldom required to do any thing of this nature.

It is evident, that the value of a hind's wages, in money, cannot be accurately stated, that must vary according to the market price of the articles, in which he is paid. On an average of some years past, it could not be less than twenty-five pounds sterling per annum.

The circumstance, which deserves particular attention with regard to this class, and which renders their condition so much more comfortable than that of the labourers in many other places, is their receiving payment of their wages in the necessaries of life. They are far more comfortable than those, who receive the same rate of wages in money, any where; they are generally more faithful to their employers, and infinitely more attentive to the interest of their families.—They have all the necessary articles of food continually at hand, and seldom need to purchase any thing considerable, except shoes. Their wives make linen from their own flax sufficient for their families, and often cloth, for other articles of dress. The quantity of corn which they can afford to sell, with the surplus produce of their cows and hens, brings them as much money as fully answers every demand, and enables them to give a better education to their children, than is sometimes obtained by persons, considerably above their condition, in some other parts of the island. There are few of this class, in East Lothian, who cannot read, most of them can write a little; none of them fail to have their children instructed in these necessary branches of education, while many of them get them taught a few of the rules of arithmetic. One sees, about every farm-house, a number of children vigorous and healthy, decently cloathed, and exhibiting every appearance of being well fed. Not an instance occurs of any of these people soliciting relief from the public, unless when they are, by some accident, disabled from future labour, or overtaken by the infirmities of age.—Indeed the times which are hardest for the lower classes, in general are usually favourable for them, because the corn and other articles which they have to sell bears a better price, while what they have to purchase is not so much affected.

Wherever labourers are paid in money, if they have the smallest inclination to be extravagant, they are furnished with the means. Having money among their hands, they do not scruple to gratify the present propensity, and live in expectation that pay-day will soon return. They are even laid under temptations to dissipation, though they may have no natural inclination to it; they must often in procuring necessaries for themselves and their families, have occasion to meet their neighbours, with a little time to spare, and a little money in their pockets; they must have a little conversation, that can be enjoyed to greatest advantage in the ale-house, and why may they not enjoy themselves with a trifle of the money, for which they have toiled so hard? Thus love of society, at first, and afterwards love of liquor, induces a habit which the prospect of disgrace and misery cannot counteract, and which had probably never existed if the unfortunate beings had been paid for their work in the necessaries of life, instead of being sent to the market with money to procure them. This is not theory, it is a fact amply confirmed by the experience of every manufacturing and agricultural district, where the labourers are paid in money. It is an evil too, which cannot be fully comprehended by any one who has not witnessed the sober habits, the economy, and the healthy flourishing families of those who live under a different system.

The cottage system, which found many advocates some time ago, was far inferior in every view of the matter, to the manner in which labourers in agriculture are accommodated here. Many of those who laboured to introduce the new cottage system, deserved all praise for the purity of their motives; every friend of humanity will honour them for the generous interest which they felt in behalf of the labouring poor; but if they had understood the condition of the hinds in this county, they would have found out a much better plan, for accomplishing their object, than giving to every cottager land to produce his subsistence. A hind here receives as much corn as such a cottager might be expected to raise, his labour is not interrupted to his employer, nor himself worn out by extra and excessive labour; he has no care upon his mind, no rent to pay, no bad seasons to dread, for whatever may be his master's crop, he is sure of his full share. If the labourer profit by this system, the employer and the public profit still more: the employer does not pay a man who wastes half his strength at other work, nor rely on a servant who may sometimes disappoint him, by attending to other concerns. The public must gain in the increased quantity of human food produced, for without doubt an acre of land occupied by a cottager will not yield as much at as little expense, as if it made part of a farm cultivated by a person with sufficient capital.

Were all the farm servants over the kingdom paid in kind, it may be safely affirmed, from the experience of the places where this practice prevails, that the advantage would be great to themselves and to the public. The master might probably, in some cases, find it more convenient to give money, but he is far more than recompensed for any trifling disadvantage attending the other mode, by the valuable moral habits which it is calculated to preserve. Every master, who properly understands his interest, will admit, that he had better pay sober, honest, and industrious servants, than have those of a different description almost for nothing. From their being accustomed to pass little money through their hands, many of the farmers' servants, in this county, acquire such habits of saving, that they lay up a few pounds for old age, or to meet any contingency, which may require more than their ordinary income.

Female servants receive from two pounds to two pounds five shillings, in the half year; those who serve in the families of farmers have beside, one-half of a peck of flax-seed sown.

The wages of day-labourers are very variable; at present, they are from sixteen-pence to twenty-pence per diem. Wherever the work is of such a nature that it can be contracted for by the piece, it is frequently done in that manner. In this case, the employer may always reckon upon having his work done more expeditiously, and it is his own fault if he do not take care to have it done well; the labourer too is paid in exact proportion to his activity and diligence. Persons who adhere to the mode of paying labourers by the day, from an idea of cheapness, are very much mistaken; these whom they employ are not such fools as to toil themselves to death to no purpose; they will take care that no profit be gained by this sort of economy; the work must cost a proper sum whether it be done in three days or in five.

A few labourers have houses from farmers, and work for them constantly; as they are paid for all weather, their wages are always a little below those which are given to persons not regularly employed. On large farms it is not unfrequent to retain labourers by the year, on the same terms as the regular plough servants. These are employed at the thrashing machine, at filling and spreading dung, at casting water furrows, and in short, are necessary in performing more multifarious jobs which constantly require several hands, on every corn farm.

SECT. II.—PROVISIONS.

In a district so well cultivated as this, provisions must necessarily be abundant, and it is to be expected, that the generality of the people will, in this respect, live comfortably. A county which at all times exports a great quantity of articles of the first necessity, cannot be in want of these itself. East Lothian not only furnishes plenty of corn and butcher meat of all kinds, and of the best quality, but possessing a considerable extent of coast, has generally a pretty good supply of fish.

Though all provisions are plentiful, it must not be inferred that they are cheap. The regular markets, from which no part of the county is far distant, the good roads which afford great facility of carriage in every direction, and particularly Edinburgh not being far distant, and requiring always a great supply, causes every article of provision to bear nearly the same price over all the county, and to be much the same as in considerable towns. The price of bread is never much lower than it is in Edinburgh, oatmeal is as high, butcher-meat equal, cheese, butter, and eggs, are usually as much cheaper, as the expense of carriage to that place. It is not possible to convey any accurate idea of the usual price of these articles, by stating what it is at any particular period, because it varies greatly at different times; this is particularly the case with regard to those articles which do not keep for a long time, such as butter and eggs. It may be remarked that the grain of this county bears generally a price not greatly below any raised in the kingdom; this will appear from the weekly returns of Haddington market, in the Edinburgh newspapers, and from those of Mark-lane, in the London papers. This, in the circumstances of the county, affords satisfactory proof of the excellence of its grain.

The people in general live much better now than formerly. Perhaps the farm servants of this day fare not much worse than the grandfathers of their present masters. The very *liberal minded* Dr. Johnson defines oats to be a grain which feeds horses in England, and the people in Scotland; the latter part of his definition will not do now, at least for East-Lothian; oat-meal porridge indeed forms the breakfast, and often the supper of the lower classes, and of all the children, and a better cannot be conceived; wheaten bread however is universally used, except in the houses of farmers servants, where a species is prepared from a mixture of peas and barley, which is very agreeable and highly nutricious. All classes eat butcher-meat occasionally, and in the lower parts of the county, fish, which may be had almost at all seasons.

SECT. III.—FUEL.

The great article used for fuel, is pit-coal, and this article being plentiful, other things are seldom resorted to, for that purpose. In the Lammermuir district, peat is burnt; this however, owing to the labour which it costs, and risks to which it is exposed from the weather, becomes truly an expensive fuel, and is only prepared where, from local situation, coal cannot readily be obtained. The coal is all near the western extremity of the county, a circumstance which would be heavily felt by those in the east, were it not, that the roads are generally good, and at the same time a considerable quantity of coal imported at Dunbar, both from England, and the districts on the Frith of Forth. It has already been stated, in another part of this work, that the price of coal at the pit is four-pence halfpenny per cwt. Those who live near Dunbar find little difference, in point of expense, between bringing their coal from the west, and purchasing it at that part; the difference in price is nearly balanced by that in the carriage and in the quality. At North Berwick too, coal is imported, so that upon the whole, it cannot be regarded as a scarce article or difficult to be had, except among the hills, where the difficulty lies in the carriage.

At a former period, coal has been wrought near the eastern extremity of the county to a considerable extent, and it is affirmed that there is a very large field of coal unwrought there still. It is surprising that it should not be turned to advantage, as the internal demand for coal is great, and as its situation upon the coast would afford great facility for exportation.

CHAPTER XV.

POLITICAL ECONOMY AS CONNECTED WITH AND AFFECTING AGRICULTURE.

SECT. I.—ROADS.

Good roads constitute one of the most important of all public improvements. Without an easy communication among the various parts of a country, many of the most important improvements, particularly in agriculture, could not be effected at all. Our forefathers, who had roads which could not bear a carriage during a great part of the year, and transported every thing on the backs of horses, could not, with all the talents that ever fell to the lot of man, have carried the agriculture of the country to its present improved state. Good roads may be considered partly as the cause perhaps, and partly, as the cause of internal prosperity; it is certain, however, that they are inseparably connected, and advance in the same ratio.

In 1750, the gentlemen of this county obtained an act of Parliament for repairing the great post road from Dunglass to Ravenshaugh. This was the first turnpike bill for Scotland, a circumstance which may serve to shew the immense improvement which the country has made in this respect in little more than fifty years. At that period, the corn delivered in winter and early in the spring, was carried on horseback, at the rate of about five or six firlots on each horse; a pair of horses and cart will now carry to market ten bolls, from almost any part of the county, and in any weather, except when the ground is covered with snow. In what time would a farmer at this day, with the comparatively small number of horses now generally kept, carry the large crops which he raises to market according to the old method? Either more horses must necessarily be employed, or one half of his time would be consumed in the delivery of his crop.

The great post road, passing nearly through the centre of the county, and from one extremity to the other, necessarily gives it a considerable advantage. There is always one line of road in this case through the whole extent of the district, kept in good repair, and whatever be the condition of the inferior branches, this must afford considerable facility of intercourse, at least in all the central parts. Besides this, there are several other lines of turnpike road; one leaves the main road, about four miles west of Dunbar, and passing westwardly through the middle of the lower district, joins it again near the extremity of the county; another line runs in a parallel direction along the coast from North Berwick to the west; a third line commences at Tranent, about three miles from the western boundary of the county, and runs towards the south east till it enters the county of Berwick, at Kilpallet Burn. By these principal roads, which are for the most part kept in tolerable condition, the communication through all parts of the county is easy and regular, the various articles of farm produce are conveyed to market without difficulty, and lime and dung are transported with ease in all directions. Several other roads, by the bill of last session, are also to be included under the turnpike system.

The circumstance of East Lothian enjoying so early the benefit of the turnpike system, must have contributed much to its present advanced state of improvement; the circumstance however of having a tolerable road at an early period, may have helped to prevent us from obtaining a very excellent one; it is kept in a creditable state of repair, but has by no means been well planned. One would naturally imagine that few things can be more simple, than the laying out of a road, but if we may judge from what has actually happened, this is not the case. None of the early formed roads have been done on sound principles, and it is only after people have profited by the experience of their own blunders, and the blunders of others, that they have conducted this most important and radical branch of improvements judiciously.

When roads were little else than mere tracts to direct the route of the traveller, and were good or bad chiefly according to the nature of the soil through which they passed, it seems to have been studied rather to carry the path over rising grounds than through plains. A dry road was probably accounted an object of greater importance than a level one, and over hills there is the greatest chance to be dry. This was most likely the principal reason which induced our forefathers often to carry their road over a hill, when it would have been fully as near to have gone round the base of it. When roads came to be regularly laid, and a little more care and expense could make that which passed through wet land as good, as that which passed through dry, the great object of attention should have been to have them as level as possible. The principle upon which roads were formerly made, if they can be said to have been made, seems to have been to carry them over all the high grounds; the principle now should be to avoid them. But it has frequently happened, that the new road has been carried through the old tract. In this county, if the old tract has been partly abandoned, the new principle has not been sufficiently attended to. It would be easy in many places to alter the line of the post-road to great advantage; alterations have been often proposed, but there are generally so many opposite opinions to reconcile, and so many clashing interests to adjust, that as yet none of these plans has been carried into effect.—Private interests so frequently interfere, and are so frequently consulted in preference to public convenience, that it is not easy to get a line of road carried the whole extent of a county, without some deviations from sound principles. Perhaps the best way would be, for the public at large to assume the power of fixing all the great lines of road, and to appoint persons for that purpose, who could have no private ends to promote. It is only supposing, that the landed proprietors of a county act upon the ordinary principles of human nature, to expect, that where their interest is concerned, their judgment will be somewhat influenced.

If the principal road was bad, previous to the turnpike act of 1750, the cross-roads might be expected to be still worse; these continued indeed in a miserable condition to a much later period. After the advantages of a good road, however, were felt, and the bad condition of the bye-roads became more striking by contrast, they began to receive some degree of attention. Till within these few years, they were far from being good, even now they are no doubt susceptible of improvement; but they are, generally speaking, pretty comfortable, and in several places, excellent. The spirit of improvement has extended to this subject; every one is sensible that nothing can be done to the purpose without good roads, and consequently there are few parishes, where they do not receive considerable attention.

When the turnpike act was renewed in 1770, provision was then made in it, for making and repairing the cross-roads; previous to that period, they were supported by statute labour, under the authority of the Scotish Act of Parliament of 1669. This system in East Lothian, as in every other place where it has obtained, was both oppressive and inefficient. Individuals often found it extremely inconvenient to be called away to repair the roads, when their own business required all their attention, and the public gained little by their labour, for, like all services in kind when performed by compulsion, it was most carelessly executed. If the *four hours* were spent, little attention was bestowed, whether that period was devoted to labour or idleness. These inconveniences being fully felt, it made a part of the new bill to take money instead of labour. It was provided,

1. That the Justices of the Peace be authorised to convert into money, according to the rate of labour at the time, the six days' work which the tenants were obliged to perform.

2. The money received in lieu of labour was, except in certain cases, to be confined to the parish where it should be levied.

3. Cottagers, renting houses not above twenty shillings, were to be exempted.

4. Lands, occupied by proprietors themselves, were to be taxed at the same rate with those held by tenants; ground let for pasture, which the lessee was not permitted to plough, was to be charged as if in the natural possession of the proprietor, and paid by him. The statute further directed, that a list of the plough-gates

should be taken up, for the purpose of fixing a permanent rule by which the tax should be levied in future.

A defect of the Act, useful as it was, has been often complained of: it did not take in the coaches, chaises, and saddle-horses of proprietors, but gave the use of the large roads to them without any compensation.

When this part of the statute came to be carried into execution, it was proposed, that, in place of taking the plough-gates as they then stood, they should be taken, as nearly as could be ascertained, according to the number used in 1750; which, being prior to the commencement of improvements, would put the county on an equal footing; whereas, if taken at the time of passing this second Act, an inequality might ensue, as improvements in some places had made considerable progress; some ploughs were now wrought with three horses, a few with two, while a considerable number, according to the ancient practice, were still drawn by four. The plough-gates therefore were taken up agreeably to this proposal, where it could be done; and where it could not, allowance was made for the state of improvements. The rule adopted for assessing grass lands was accounting fifty acres a plough-gate; though after all, it must be confessed, that the rule was not correctly acted upon. The rate of assessment was six days, labour of a cart and two horses for each plough, and that, converted into money, was three shillings and fourpence per day; since 1796, it has been raised to five shillings, and probably it will soon be higher. The number of plough-gates, according to the parochial returns amounted at that time to 1350. It is highly probable, that some inaccuracies would creep in, when the statute labour was first converted, and it is impossible but some must have taken place since. This, indeed, is acknowledged in the Act obtained for the county, in the last Session of Parliament. " And whereas, there are " sundry plough-gates lost and unaccounted for in the " several parishes in the said county, which might " still be made up and corrected, be it therefore enact- " ed, that it shall, and may, be lawful for the Heritors " and Justices of the Peace of the said county, in vir- " tue of the powers vested in them by the said Act, " passed in the ninth year of the reign of his present " Majesty, to proceed, immediately after the com- " mencement of this Act, to make the statute labour " of the county more effectual, by making up and cor- " recting the lists of plough-gates, and converting and " demanding the rate of conversion, according to the " rate and hire of labour in that part of the county, " where the same shall be performed at the time, accor- " ding to the several powers and provisions contained in " the said Act." The heritors may, if they choose, take half the statue labour in kind; but the general practice is to take the whole in money, at the ordinary conversion. In fact, such a mode is much better for all parties; the tenant finds it for his interest to pay the money, rather than send his men and horses, and the work is executed in a more satisfactory manner, and to greater advantage.

The great turnpike road, that leads through the county, is under the management of trustees, who consist of every heritor whose valuation extends to one hundred pounds Scotch money; but the inferior turnpikes, namely those on the north road, and others lately erected, are managed by the heritors possessing land locally situated in their neighbourhood. The bye or cross roads are managed by the heritors of the different parishes respectively. Each parish takes care of the roads within its limits; to which its own funds are appropriated exclusively, except in those cases in which the Act permits the trustees to take part of the statute labour in aid of the turnpike funds. The parishes are divided into districts, which particular persons are appointed to superintend; it belongs to these overseers to contract for all necessary repairs in their respective divisions, and to see that their work be properly executed. Their accounts are examined at the annual parochial meetings, and their work is liable likewise to be inspected, if there be any doubt as to their having laid out the money entrusted to them advantageously. Parochial reports must besides be made annually to the Quarter Sessions of the county, which have power to fine the parishes, that neglect to allocate or execute the statute labour. What from the emulation, which usually prevails among the overseers, to have their respective districts appear in a superior condition, and what from the various checks, which are in this manner established, not only against fraud, but against carelessness, there is every reason to believe, that the statute labour funds are faithfully managed. In fact, the attention, which has been paid to this subject, has brought the bye-roads in some parishes into a better state, than even the great post-road; in many places they may yet be greatly improved, but that improvement they are gradually receiving.

SECT. II.—CANALS.

There is no inland navigation in the county, and from local situation and other circumstances, it may reasonably be doubted, whether there could be any to advantage. The face of the country is very uneven, which would prevent canals from being carried for any considerable length, unless at greater expense than they would likely ever pay; and on the other hand, the county, which is of no great breadth, is washed on one side by the Frith of Forth and German Ocean, so that the extent inland, is no where very great. The ports of Dunbar on the east, and North Berwick on the north, make the inland carriage to all the parts of the county very trifling; the western parts are, in this respect, still more favourably situated. The only article exported from the county, which could be advantageously conveyed by water carriage, is corn; the only articles of consequence imported, are wood, iron, and coal. But all the trade, carried on in these various branches, could not maintain a canal in any one direction.

There are two tracts in which some persons have imagined, that canals might be made with advantage. The one is by the rivulet of Peffer, running through the lower part of the county, from Tyninghame Sands on the east, to Aberlady bay on the west; an extent of about ten miles. The other is from Tynemouth to Linton; a distance of only three miles. In both situations canals might be formed at little expense; but from the little benefit which they would seem to promise, they will very probably never be executed. From the very limited trade of the county, and the little land carriage, which could in any case be saved, it seems pretty evident, that East Lothian cannot profit by inland navigation, and the probability is strong, that it never will have any.

SECT. III.—FAIRS.

In former times, fairs were very much frequented, and a great deal of business done at them; besides buying and selling, which was carried on very extensively, much other business was done, which persons reserved for several months till they should meet their correspondents at these great resorts. When intercourse among all classes of people became more frequent, and regular and weekly markets were established in all considerable towns, fairs began to decline, and are now of little consequence any where, unless under some peculiar circumstance.

In this county there is still the semblance of several fairs, but, with one or two exceptions, they have become quite insignificant. The following is an account of them, such as they are.

Dunbar.—First Tuesday after Whitsuntide and Martinmas, O. S. The principal articles sold, are pedlar's wares, and a few black cattle; many farm servants are also hired on these occasions.

North Berwick.—On the Thursday after Dunbar, at both seasons; little other business is done, except what is carried on by a few pedlars.

Gifford.—First Tuesday of April, third Tuesday of June, and first Tuesday of October. These are the most considerable fairs in the county; a great number of cattle and sheep are exposed at them. The vicinity of this place to Berwickshire, which is much more a grazing district than this, and being a sort of central point, where the farmers of the two counties meet, render its fairs of much greater consequence than any other in the county. A fair or tryst for a sale of sheep, chiefly great ewes, has lately been established, to which a good many people resort.

Stenton.—The last Tuesday of June and of October. A few cattle and sheep, with some wool, are the principal articles sold.

Old Hamstocks.—The first Tuesdays of July and November. The articles of trade are, cattle, sheep, wool, and some merchant goods. Very little business is done.

Ormiston.—First Tuesday of July. Of very little importance.

Haddington.—The second Tuesday of July and second Thursday of November. A few horses and cattle are sold at these fairs; but they are so much fallen off, as to be much inferior to the regular weekly markets.

Painstone.—The first Wednesday of August, for horses, cattle, sheep, and some other things of inferior value.

Cockenzie.—First Thursday of November. In former times cattle were sold at this market, but now undressed flax of home growth is the chief article of traffic.

None of these fairs are of any real utility, except Gifford, and no person need regret, that they are grown insignificant, and likely to become extinct; they are far more injurious to the industry and morals of those who attend them, than useful to the business of the county, which can easily be done without them.

SECT. IV.—MARKETS.

Regular weekly markets, at which the various articles of farm produce may readily find purchasers, are of very considerable importance to the interests of agriculture. There are many articles which do not easily admit of being carried far, and if the farmer has to send any of his commodities to a great distance, before he can meet a purchaser, the carriage must be regarded as so much of a drawback upon his profits, and consequently operate as an impediment to improvements. The farmers of this county are very favourably situated in this respect. Haddington and Dunbar have both weekly markets; the former, however, chiefly deserves attention, both on account of its central situation and on account of the business done at it. The weekly corn market of Haddington is perhaps the greatest in Scotland, and not inferior to many of those belonging to the English districts. All grain brought in bulk into the market is sold for ready money; and it rarely happens, even during the most plentiful times, that sales may not be executed to any reasonable extent. Besides the advantage of lying in the heart of a fertile and well cultivated district, Haddington is at such a convenient distance from Edinburgh, as to be the common resort of those numerous dealers, who furnish a considerable portion of the weekly supply to the metropolis. A number of bakers and millers attend there regularly, but the great body of purchasers are a kind of small dealers, who reside chiefly in the western parts of the county, and carry the corn bought in Haddington to the west, particularly to Edinburgh.

These dealers are generally furnished with two or three single-horse carts, which they drive themselves, and bring with them to market. They frequently procure their cargoe from several farmers, who bring sometimes but small quantities of grain to market, according as it suits their convenience. It must be obvious to every attentive observer, that this middle class of dealers, interposed between the growers and the consumers, must contribute greatly to the advantage of all parties, by producing a regular demand in one market, and supply, in another. They must, in fact, too, help to keep down the prices of grain by lessening the expense attending the sale of it. Were the farmer to drive his corn to the distant market, where the consumers could purchase it, he would certainly be entitled to hire for his horses and carts; were he to attend the market himself, he would be entitled to some remuneration for his loss of time, his expense, and trouble. The sum which would be a very insufficient compensation to the farmer, will be reckoned a handsome profit by the middle-man. The reason is obvious; the dealer, in the course of the year, carries the grain of several farmers to the distant market, and consequently he is well requited with half the sum that could remunerate them. The profit of these dealers consists merely in the difference of price between buying, and selling, which is always inconsiderable. It is impossible to conceive any method, by which the public can be served so cheap. Let any one judge, whether the farmer could employ his men, horses, and carts, and attend himself at a distant market, at so little expense as these people can do, even if he could attend all the year regularly in such places; but there are seasons of the year, when he could not find sufficient time for it, and therefore the market could not be supplied. Nothing therefore can be more groundless than the clamour, which thoughtless people have raised against these dealers; there is not another class of men, who do such important service to the public, for such small payment.

It has been thought, that the regulations of Haddington market, with regard to the hours of sale, could be altered much to advantage; at present, all kinds of grain are exposed at the same time and in different places, which renders it very inconvenient for those, who have different kinds of grain to sell or to purchase. This could be easily obviated by fixing the time for the wheat and peas markets, which are contiguous, an hour earlier than those for barley and oats. It would probably, however, be a still better plan for removing the evil, to present all the grains for sale in one place, and to have a regular market-place built. The reader, who is not acquainted with the case, will be surprised to hear that a market, in which five or six hundred * bolls of wheat, besides other grain, are not unfrequently offered for sale, is held on the public street, and that, a street both narrow and dirty, without the smallest shelter, be the weather what it may. A greater scene of confusion cannot well be conceived, than the street of Haddington on a Friday, when the market happens to be full; men, horses, and carts, huddled together promiscuously, and crowded into so small a space, that one can hardly pass along without danger of being crushed or trampled to death. The quantity of business done deserves a handsome market-place, and can afford it; a small custom imposed upon every sack of grain would easily repay

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* Sometimes, a great deal more.

the expense, and the farmers would, no doubt, pay cheerfully for the convenience. If a large quadrangular range of sheds were built, different apartments might be allotted to different kinds of grain, and though all kinds were exposed at the same time, no great inconvenience would follow.

A very considerable improvement took place a few years ago in the appointment of a clerk for the wheat market, who takes account of the quantity of that grain sold, and of the different prices, which are published every week in the Edinburgh newspapers. The like practice might be extended with advantage to the other kinds of grain.

When the price of grain was very high some years ago, one of the causes assigned for the dearth by some superficial people was, the practice of selling grain by sample; it was strenuously maintained, that if it were all exposed in bulk in the public markets, the evil would be removed. It is scarcely necessary to remark that this reasoning supposed the scarcity to be artificial, a supposition which every person will now abandon; but it may not be improper to notice the absurdity of opposing the sale of corn by sample, and the still greater absurdity of imagining, that it can tend to raise the price of the article. In no case could the exposing of grain in bulk lower the price, unless it be for one day, but there are many cases in which it would very much tend to raise it; it would increase the expense of bringing it to the consumer, and consequently, the price.

This county affords a very striking illustration of this. A very small proportion of the grain raised here is consumed within the county; the far greater part is sent to Edinburgh, Glasgow and not a little, on particular occasions, to London. According to the plan of presenting all corn in the public markets, it ought to be carried to the market, where the consumer himself, or at least the baker who makes it into bread for him, may purchase it; for a great part of the mischief is supposed to arise from its being sold to a corn-dealer, and consequently passing through too many hands. Now the absurdity must strike every one forcibly of an East Lothian farmer, after he has presented as much corn in Haddington market as he can sell to the inhabitants of the county, carrying the rest to distant markets. In fact, such a mode of marketing his commodity would impede him in every step of farm culture, and ultimately would lesson the quantity of produce which could be brought to market. Perhaps the warmest advocate for this practice will be satisfied, if the farmer present all his corn in the market nearest him, even if it should necessarily introduce that terrible class, the dealers.

It is as demonstrable as any truth whatever, that if our farmers were to present all their corn in the market, it would in numberless instances tend to raise the price, because it would increase the expense. Suppose a farmer, in the neighbourhood of North Berwick, is obliged to carry his corn to Haddington, a distance of ten or twelve miles, instead of selling it by sample at home; he sells part of it to a person who means to ship it at North Berwick, for Glasgow or London, he or some other person must bring it back almost to the very spot whence it set out. Can all this be done for nothing? Must not the expense of carriage, for twenty or twenty-four miles, be added to the price of the article, and paid by some person? Farmers must be regarded as wonderful simpletons if they can be supposed to submit to all this labour, loss of time, and expense for nothing.

We ought to lay the interest or convenience of the farmer entirely out of view, and consider the matter with reference to the public good. While servants and horses are spending a day in carrying this corn to market, which they could carry to the granary of the merchant or the ship perhaps in an hour, they might be usefully employed in farm labour. The smallest portion of time unnecessarily lost from this, is so much loss to the public, as it must cause the farmer either to have some work less perfectly performed, or keep an excess of stock for this extra employment; in either case he produces his grain at increased expense. If a farmer, situated according to the above supposition, is obliged to employ two servants and four horses, one day in each week, in this unnecessary labour,* and the calculation will be found to be very moderate, he loses one-sixth part of the original cost of four horses, of their yearly maintenance, of the wages of two men, and of the tear and wear of carriages; this will not be found to be a trifle, and this, in one shape or other, is lost to the public. It would in reality be a public benefit if all corn could be sold by sample, and driven directly from the place where it is raised, to that where it is to be consumed or shipped, without one mile of useless carriage; and it would be still further a benefit if this could be done without taking off the farmer's servants and horses from their proper employment.

The only thing like reason that can be urged for selling all corn in the public markets is, that people would see how the supply is proportioned to the demand, and be in no danger of buying at a high price on account of an *ideal* scarcity. This, it may be remarked, however, is not very consistent with another common notion, that farmers frequently produce artificial scarcity, by hoarding up their grain; that, they certainly could do still, for they would bring no more to market at a time than they pleased: but it is a proper and a sufficient answer to say, that if presenting all grain in the market would prevent the idea of scarcity, where the thing did not exist, it would as readily destroy the idea of plenty, where it was not real; if, on the one hand, it produced competition among the sellers by shewing the extent of the supply, it would equally increase competition among the buyers, by manifesting the extent of the demand. If, one day, the market had an uncommon supply, the farmers might probably sell a little lower, rather than carry home their grain; but they would either stay at home the next day, or bring a smaller quantity, and things would return to their level. The buyers would act under the influence of the same principle, and the trade would not be one whit different from what it is at present, when part is sold in the market and part by sample.

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* By unnecessary labour is meant, all that is above what would be required to carry the grain to the granary, or the ship, had it been sold by sample at home.

It might be practicable, though it could not be useful, to cause all the corn produced in the vicinity of a large city to be sold in the public market; but, in little provincial towns, such as those in this county and over the greater part of the kingdom, the corn sold in public serves more for regulating the prices than disposing, generally, of the grain. To attempt, therefore, to prohibit the sale of corn by sample, would be to impose a severe restraint upon agriculture, and, we may say, could not fail to raise the price of the commodity.

An attempt was made some years ago, by the magistrates of Dunbar, to establish a corn-market in that town, upon the same principles with the one in

Haddington, but it did not succeed. A considerable quantity of grain is sold there on the market-day, which is Thursday, but it is all sold by sample.

SECT. V.—COMMERCE.

The great article of commerce is grain, of which, in the very worst seasons, East Lothian raises a vast deal more than supplies its internal demand: the surplus is partly carried by land to Edinburgh, and partly shipped at Dunbar and North Berwick, for London, Leith, Grangemoth, and Glasgow. This, however, is almost the sole branch of export trade; and the only one that can be called regular. In most seasons herrings are taken at Dunbar for a few days, these cured in different ways form an article of commerce; last year, 1804, the fishing continued for some weeks, and a great number were taken, which found a ready market.

The oyster fishery at Prestonpans deserves to be regarded as a branch of trade; that fishery was once very considerable, but has of late much declined, owing, as is supposed, to the too great avidity of the fishermen in taking the fish below size. Thirty cargoes have been shipped in a season, each cargo amounting to three hundred and twenty barrels, and each barrel containing twelve hundred saleable oysters; the price, per barrel, was from four shillings and sixpence to seven shillings. The oysters were dropped in bays, at the mouth of the Thames and Medway, to fatten for the London market. The sum of two thousand five hundred pounds has been drawn annually, during several successive years, for oysters exported in this manner; still more was supposed to be received for those which were sold in the country around, or sent to Edinburgh. Forty boats were then employed in the fishery; since the year 1786 the number has greatly decreased.

The import trade consists entirely in such things as are used within the county, and in which it cannot supply itself; these are chiefly wood and iron from the northern countries, and coal from England, Fife, and other parts on the Frith of Forth.

Dunbar had once a company engaged in the whale fishery, which, for a long time past, was a losing concern, and has lately been abandoned. Many years ago that town possessed a pretty considerable trade, but for sometime past that has been limited, as we have stated already, to the export of corn and import of articles required for the internal consumption of the country around. The vicinity of Leith, the great emporium on the east of Scotland, must always confine the commerce of East Lothian within very narrow bounds.

SECT. VI.—MANUFACTURES.

East Lothian makes as little figure in manufactures as in commerce; the improvement of the soil finds employment for the greater part of the capital, and being congenial to the long established habits of the people, engages almost all their attention. The only manufactures which seem to flourish in the county, are those for which it furnishes plenty of the raw materials. Starch-works and distilleries have been established for a considerable time, and have been carried on to advantage. Where corn is produced in abundance and of good quality, as here, these works are profitably carried on, and they benefit the district by furnishing the farmer with a market at hand for his produce.

There are some soap works at Dunbar, which may be presumed to produce a considerable quantity of that article. Sail-cloth and cordage are likewise manufactured there, but to no great extent.

Messrs. Roebuck and Garbet, from Birmingham, about fifty years ago established, at Prestonpans, manufactories of white stone ware, and of sulphuric acid. None of these branches, it is believed, have proved very profitable. At the same place there has existed for some centuries a manufacture of marine salt, which most probably has succeeded better than the other establishment.

Repeated attempts have been made, and have uniformly failed, to establish a woollen manufacture at Haddington. It is reported that Oliver Cromwell, who spent some time in that place, first formed the design of establishing a manufactory of coarse woollens there. The design was carried into effect, under his patronage, by Philip Stansfield, who held the rank of colonel in his army. Standsfield continued to carry on this business for some time after the Restoration; but, in 1687, he was murdered by his own son, and the establishment, which probably had never flourished, was given up.

As a number of people had acquired some little knowledge in the manufacture of woollen cloth, they continued to do a little in the way of making coarse cloth of this kind, and selling it, as it came from the loom, to persons who prepared it for the market.

This trifling trade continued to the year 1750, when many of the landed gentlemen of the county made an attempt to revive this branch of manufacture, under the firm of the "Tarred Wool Company of Haddington." This company, after having carried on business for a few years, gave it up with the loss of their capital.

A few of these gentlemen more persevering than the rest, purchased the remaining stock of the first company, and when they had made another effort for a few years, finally abandoned the scheme, with the loss of the capital, stock, and seventy-five per cent. in addition.

This short account of various attempts made to establish a branch of manufactures in a place which seems not ill calculated for it, is of little importance in itself, but it may serve to shew how difficult it is to establish manufactures in an agricultural district. Perhaps agriculture and manufactures will scarcely be found to flourish together. Wherever people have acquired a predilection for the one, and turned their capital that way, the other is likely to be neglected. If a country has received considerable improvement, and agriculture become the favourite employment, manufactures will neither obtain the capital nor the hands necessary to their success, both have been already engaged. Should capital accumulate above what can be profitably employed in cultivating the soil, and population increase beyond the demands of rural labour, then may mannfactures be established, and the necessity which forced a quantity of capital into a new channel, and compelled a colony of labourers to seek new employment, will probably ensure success. East Lothian, however, is not yet arrived at that point; it has neither capital nor population beyond the demands of agriculture, and hence the little success attending all the attempts hitherto made to establish manufactures in it. If any attempt of this kind were to be made in the present state of things with a rational prospect of success, it would be necessary to import both capital and hands from some other place, and the hope of succeeding by establishing a new people and a new branch of business at the same time cannot be great. If, at any future period, manufactures shall be tried in this county under better auspices, it cannot be said to be without some important advantages for them. It is furnished with coal, which, though not very cheap, cannot be said to be excessively dear; it has not great abundance of water, yet it possesses some situations, in which water machinery could be erected with much advantage; it has ports, from which the produce of manufactures could be transported with facility; and it furnishes the articles of the first necessity in such plenty, that its population must increase tenfold, before it need to procure these from any other part of the country. These advantages will be found to be of great importance, when the circumstances of the country, shall require the establishment of manutacfures in East Lothian, but that period is probably very distant.

SECT. VII.—THE POOR.

The great fund for supporting the poor, in most places, is the money collected at the church doors on Sundays; in not a few cases, there are considerable funds accumulated from former savings and from donations, the interest of which is applied in aid of the ordinary revenues. In many parishes there is need to lay an assessment occasionally on the land, but no where is there any fixed rate; the sum varies according to the number of the poor and the exigencies of the times.—The amount of this assessment is always inconsiderable, except where there are towns or large villages; and in no case can it be accounted a severe burden or the principle on which it rests, likely to lead to serious consequences. That enormous burden of poor's rates, which hangs a deal weight on all agricultural exertion in England, is unknown in Scotland, and it is to be hoped will ever remain so.

It has been disputed, whether a rate for the poor can be compulsatory in Scotland; and consequently, whether they have any legal claim to support, from the public. It does not belong to the design of the present work to discuss this question; but a benevolent mind can scarcely avoid expressing a wish, that the poor had, if they have not, some better security against starving, than the mere good will of others, especially considering the temper, which has been sometimes displayed, when persons, who happened not to be favourites, applied for parochial aid.

The sober and industrious habits of the people of this county, as indeed of Scotland in general, together with a sort of pride and spirit of independence, which makes them regard it as dishonourable to seek relief from the parish, afford security against any very extensive demands of this nature. The instruction given to the lower classes in Scotland, and the care taken to instill into them the principles of religion and morality, are the best security against intemperance and dissipation, which contribute so abundantly to the increase of poor's rates. The character of the people must change, before the support of the poor is likely to become a grievous burden here, even if the system were as bad in principle as that which prevails elsewhere.

There is one circumstance in our management of the poor, which is peculiarly calculated to prevent an excessive rate. The persons lay on the assessment, who are to pay it; and in this case, if they make it exorbitant, they may blame themselves. The supply granted, according to this system, will always be so moderate as to afford no encouragement to idleness; no person will prefer the scanty pittance of the parish, barely sufficient to preserve life, to his own earnings, if he be able to work at all. Surely no one will desire, that they ought to receive no support, who are entirely unable to support themselves.

The minister and church session of the parish are usually the managers of the poor's funds, because they are supposed to be best acquainted with the circumstances of the claimants; when the funds are exhausted, and the poor not supplied, they apply to the heritors for money, who grant to such amount as they judge proper. The heritors always inspect the accounts of these managers, and exercise a constant control over all their conduct.

SECT. VIII.—POPULATION.

This county contains twenty-four parishes, and part of another; these have been supposed to contain, on an average, eleven hundred souls each. This estimate may have been correct half a century ago, but at the present time is evidently too low; if, however, we take this calculation exclusive of the great towns, it will not perhaps be far from the truth. The whole population may be taken at about thirty thousand, more rather than less.

An account of the population, which may probably be deemed correct, was taken a few years ago, under what was denominated Mr. Abbot's bill; the lists from the various parishes were lodged with the clerk to the Quarter Sessions. Application was made to him for a copy of these lists, but they have been unfortunately mislaid, and cannot be got in time to be inserted here; if they can by any means be obtained, however, they shall have a place in the Appendix.

The number of inhabitants in this county may be regarded as more stationary than in others. Possessing no manufactures which require a great number of hands, and few of any kind, besides what the internal wants of the county demand, the population is not liable to the fluctuations experienced in manufacturing districts. The modern system of husbandry unquestionably furnishes far more employment, than that which formerly prevailed; but then, as that employment is diffused more equally through the various seasons of the year, and no time lost in idleness, the labourers have not multiplied in proportion to the labour performed. Yet there cannot be a doubt, that more people are now required to carry on the operations of a farm, than were thirty or forty years ago, consequently the population must have considerably increased within that time.—Besides that, as the implements of husbandry are more numerous and perfect, and the style of living in every respect greatly improved, the number of mechanics necessary to supply the wants, which this alteration has created, must be very much multiplied.

CHAPTER XVI.

MISCELLANEOUS OBSERVATIONS.

SECT. I.—AGRICULTURAL SOCIETIES.

AGRICULTURAL Societies, considered on abstract principles, appear manifestly useful; they favour that mutual communication of ideas, and serve to excite that emulation, which are found highly advantageous to other arts, and cannot be less so to agriculture. Indeed farming may be said, in some respects, to need such aid more than other arts, because it is more a sort of solitary employment. The cultivator of the soil is, in a manner insulated upon his own fields; while the persons, employed in the greater part of mechanical operations, carry on their work in company, and are, therefore, almost irresistibly led to profit by each other's dexterity or ingenuity. To make up for this disadvantage, on the part of the husbandman, it seems necessary to make him sometimes meet with his brethren, in order to communicate his observations, and in his turn, receive the benefit of their experience.

It may be doubted, however, whether the practical advantage of such societies has generally been found equal to what theory might lead us to expect. It is probable, that, in a majority of cases, they have been formed on such principles, and conducted in such a manner, as rather to counteract than promote the design of their institution. Every society of this kind is in danger, if not managed with care, of degenerating into a mere disputing club or convivial meeting, where the members eat, and drink, and wrangle, for a few hours, and afterwards part as wise as they met; or they are amused by the theories of some speculatist, who instructs them with his little flower-pot experiments and fanciful deductions, instead of that useful information and sound reasoning, which can apply to practical purposes. To render these societies useful, they must be chiefly directed to practical agriculture; to conduct them properly, there must be some person of activity and intelligence to take the lead, who possesses sufficient influence to secure the attention and respect of his neighbours, yet not so much their superior, as to prevent them from communicating freely the result of their experience.

Agricultural societies seem to be of greatest importance in places where improvements have not become general, and where the persons, by whom they are adopted, have little ordinary intercourse with others. The farmers in this county are not so situated, and it may be on this account, that they have not formed any societies; no body of men have more regular intercourse with each other; in no part of the island are the improvements of modern husbandry more generally introduced; the district itself is of that moderate extent, that a new plan adopted in any corner of it, will be known every where in less than a year. But a circumstance, which more perhaps than any other has contributed to disseminate agricultural knowledge, and render the formation of societies unnecessary, is the plan adopted by our farmers, when they attend the weekly market at Haddington, A very considerable proportion of the farmers of the county are to be found there on every market day, and it is their practice to dine in large parties or clubs, where much conversation of course takes place on subjects connected with their profession. In such companies more useful information perhaps is communicated than in formal societies, because it is communicated with more ease and freedom. The person, who is in the habit of attending the dining clubs at Haddington, may acquire as much knowledge in rural affairs, as he could obtain by attending a society formed for agricultural improvement.

If any additional advantage could de derived from the institution of a society, for the express purpose of promoting improvements, it could only be that, of directing the attentions of individuals to specific objects of pursuit, and offering some encouragement perhaps to stimulate exertion. The chief benefit, however, derived from these institutions, is the aid which they afford for circulating information; they are not needed for that purpose in this county, and it is to be expected, that the information, conveyed by the publications under authority of the Board of Agriculture, with others of a similar tendency, may soon render these societies less necessary every where.

SECT. II.—WEIGHTS AND MEASURES.

No subject connected with agriculture is involved in such confusion, and attended with such embarassment, as that of weights and measures. Though the greater part of the denominations be the same every where, they do not mean the same thing almost in any two counties; they have not the same meaning even in the same county, when applied to different objects A pound of butter and a pound of beef often do not express the same quantity, when spoken of by the same person. This confusion causes much uncertainty and trouble, and nothing could render it tolerable, but that people have been long accustomed to it.

Land is measured in this county by the Scotch acre, which is to the English acre very nearly in the proportion of five to four; as often as the term acre is used throughout this work, then it is the Scotch measure that is meant, unless the English acre be expressly specified. It is necessary to attend to this circumstance, otherwise, when the rent or produce of land happens to be mentioned, those, who have been accustomed to English measure only, must be led into an error of nearly one fifth.

The boll is the denomination of corn measure always used, but the contents vary according to the species of grain measured. There are uniformly four firlats in the boll of all grain, but the firlat differs in size in the proportion of 21, 25 to 31. Wheat, rye, beans, and peas, are sold by the small firlat; malt, barley, and oats, are sold by the large one. Four small firlats are 4.087276 Winchester bushels; four large ones are 5.96263 bushels Winchester. Our boll of wheat then is a small fraction more than half a quarter, and our boll of barley, a fraction less than three-fourths of a quarter.

This calculation applies, it must be remembered, to the Linlithgow boll, which is accounted the standard measure of Scotland; the measure actually used in this county is somewhat larger.

Several years ago, a dispute took place respecting the corn measures used in Haddington market, when the Justices of Peace for the county found it necessary to interfere. It seems unnecessary either to detail the nature of the dispute, or the methods which the Justices adopted to remove the grounds of it; suffice it to say, that their investigation served to prove how much the measure of the county is above the acknowledged standard; and that, after all that was done to adjust differences, it was found necessary to let matters remain as they were. As our customary measure is above the legal standard, it is very probable, that the firlats of individuals vary likewise from one another; they cannot be below the standard; but they may be as much above it as they please; and it is certain, that many of them are two or three per cent. above that of Linlithgow.

Meal is sold by the peck of eight pounds Amsterdam weight. The boll of meal contains sixteen pecks or eight stones.

The greater part of farm produce, which is disposed of by weight, such as hay, hides, tallow, &c. is sold by what is called tron weight, that is, twenty-two ounces to the pound, and sixteen pounds to the stone. Butcher meat, like meal, is sold by Amsterdam weight, which indeed is the denomination most generally used for retail trade; it is not used for bread, however, which is sold by avoirdupois.

So many different articles, sold according to so many different standards, must be regarded as an evil of no inconsiderable magnitude. It renders it impossible for any stranger to buy or sell, without the risk of being continually deceived. It would unquestionably render all kinds of trade in such articles vastly more easy and fair, if all the weights and measures in the kingdom were reduced to one standard; to an ordinary understanding the thing would not seem to be of difficult accomplishment. Our forefathers, in the reigns of James the Fifth and James the Sixth, appear to have bestowed considerable attention upon the subject; but, though they did a good deal, for the period in which they lived, it were to be wished that they, or their successors had done more.

In the year 1587, a committee of parliament was appointed to examine into the measures and weights, for the purpose of establishing one general rule for the government of trade in future.

This committee, having examined the ancient weights and measures, reported that they found certain relations and proportions, among the various weights and measures, which rendered them fit to check and adjust one another. Our forefathers, in contriving their various standards of weight and measure in such a manner as to make them adjust each other, certainly manifested an ingenuity which deserves praise, and which, had they proceeded a little further, might have enabled them to save their posterity from that confusion in which they are now involved.

This parliament fixed the size of the measure for corn, to be so many inches deep, by so many wide; to check this, they decreed that it should contain so many fills of the Stirling jug, of the clear running-water of Leith, weighing a certain number of pounds and ounces, troy weight. It would seem that these regulations had not been observed, for, in 1617, a new commission of parliament was appointed to inquire into the matter.

The committee found that the burgh of Linlithgow was in possession of a very ancient firlat, with certain means of regulating it, and that they had been in use to give out to the leiges measures for corn, constructed after this standard, for fifty or sixty years back. This firlat they assumed as the standard, and upon the 21st January, 1618, proceeded to adjust it according to the ancient method. They filled this measure from the river of Leith, and found that it contained twenty-one pints and one-fourth; this water weighed three pounds seven ounces French troy. It was found besides, that some articles were sold by what was called straiked measure, that is raising the substance measured exactly on a level with the brims of the vessel; and that others were heaped; in some things it was found to have been customary to give three straiked firlats instead of two heaped ones. It was judged proper to put an end to these very uncertain modes of dealing by making the firlat, for the grains which had been sold by heaped measure contain thirty-one pints or fills of the Stirling jug.

This report was passed into a law in 1618, and since that time the Scotch standard measures for grain have been as already described.

These legislators deserve praise for the attention which they bestowed on a very important subject; they did a great deal, perhaps at that time they could not have done more with effect. It is necessary to suit laws to the temper of the people who are to obey them. When different standards were adopted for different grains, according to established practice, it was probably a measure of necessity rather than a weak compliance with ignorant prejudice. An attempt to establish one uniform measure, and enforce the use of it all over the kingdom, might have been resisted by our rude and turbulent ancestors; even at a later period it was not thought proper to press such an uniformity, though the

Treaty of Union expressly stipulates that, "from and after the Union, the weights and measures shall be of one denomination over the whole of the united kingdom." There cannot now however be the same reason for exercising such forbearance; the inconvenience of the present practice is universally felt, and the people are not now so ignorant and bigotted as to make any considerable opposition to a change.

If the stipulations of the Union were to be enforced by a new law enacting, that, after a certain time, one denomination of weights and measures should be used over the whole kingdom, that the Winchester bushel should be the only measure for corn, and the avoirdupois the only standard for weight, it could not be difficult to adjust the customary weights and measures every where to these denominations. A jury of intelligent men in the head town of every county, under the direction of the sheriff, and, if necessary, assisted by men accustomed to such calculations, could easily find out the proportions between the old standards and the new, and fix the value of a Winchester bushel or avoirdupois pound of any article according to the then current prices; their decision would serve for the information of the country at large, and particularly for regulating payments to proprietors or stipendiaries. The matter being once fixed, and the proportions in quantity and value determined, the difficulty would be over, and the prejudice in favour of old customs soon forgotten. The adopting of the new standards should in no case be discretionary, nor should dealers in particular districts be permittted, by any compromise among themselves, to increase or diminish the quantity of the articles sold. A good deal of the confusion and variety which has taken place on this subject has, in all probability, originated in such compromises. He who had inferior grain to sell, in order to get, nominally, as high a price as his neighbours, might increase the size of his measure, and the buyer, finding that it amounted to the same thing, would have no objection to humour his vanity.

It should always be kept in view, in every such case, that it is far better to make allowance in the price than in the quantity of the article. If the excess of the customary measures of this county over the Linlithgow standard was originally designed to equalise the price of grain, and to make inferior qualities, nominally, as high as that of the best, or to attract distant dealers, it was but an awkward method for attaining the end;* a small abatement in the price would have had the same effect, and prevented much confusion.

SECT. III.—FIARS.

From time immemorial, it has been the practice of this county and some others in Scotland, annually to fix, by public authority, fiar or average prices of each kind of grain sold within the county for ready money. With us, the average is taken only of wheat, barley, oats, and peas, because formerly these four species formed the staple produce of the county; though we now grow a great quantity of beans, no fiar prices of them have ever been struck.

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* This way of obtaining a good price by increasing the quantity, was by no means uncommon in former times; if a man could have obtained a shilling more on a bargain to the amount of five pounds, he would not have grudged to give property to the value of half-a-crown.

The sheriff of the county, who strikes the fiars, calls before him, some time in the last week of February or first week of March, a number of respectable tenants, and other persons who deal in corn; he requires of them an account of the quantity and price of grain sold or bought by them within the county, for ready money, from the time that the preceding crop came first into market till the day of the proof. Having obtained an account of this, he then strikes a general average for each of the four species of corn; after this he finds the number of bolls which have brought a price above that average, of them he likewise takes the average; lastly, he proceeds in the same manner with what has been sold below the general average. To each of these rates he adds two and a half per cent. and then they form what are called the first, second, and third fiars.

The addition of two and a half per cent. to the real prices, must appear a singularity to strangers, who may not easily perceive either the object or the propriety of it. In the original survey of the county, the author* accounts for this in a manner very ingenious and seemingly very just. We shall give his account of it in his own words.

" Upon looking into the above-mentioned extract† it will be found, that from 1627 down to 1647, the fiars were struck only once in the year; and as the record is silent as to the date, for the first thirteen years, it is impossible now to say at what period of the year these fiars were struck; but in the year 1648, the record shews that fiars were struck twice for that year, viz. at the Candlemas and the Lammas.

" In the following year, 1649, the fiars were struck only once; but in the year 1650, and for every year down to 1675 inclusive, with the exception of the year 1665, the fiars were struck twice, viz. at the Candlemas and at the Lammas; and again, in the year 1676, the fiars were struck only once, viz. at the Candlemas; and this practice has continued uniformly down to the present time.

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* Mr. Baron Hepburn.

† An extract from the record of the fiars.

" It seems highly probable, that the two and a half per cent. was first added to the Candlemas fiars for the year 1676, and was continued to be added to the fiars for every year from that period downwards.

" Upon examining the fiars for the twenty-six years, during which they were struck at the Candlemas and at the Lammas, and taking the average of both, which seems to be the fair medium price, it turns out in point of fact that the Candlemas, with the addition of two and a half per cent. is somewhat below the above medium of the double fiars."

This seems to account very satisfactorily for the origin of the two and a half per cent.; and it shews that they who first introduced it, paid considerable attention to the subject. It is evident indeed that fiars, taken at Candlemas, cannot shew the average price of grain through the year, because, in the early part of the season, it has not reached its full value. Whitsuntide would, perhaps, be the most proper time for finding a just average, and the addition made to the fiars taken at Candlemas may amount nearly to the same thing.

There is one objection to the mode of striking the fiars adopted in this county, which merits attention. The first price taken is the true average, the highest and lowest are only the average of the highest and lowest market days, whereas they should express the average of the best and worst grain. A person who makes a payment according to the highest fiars, may, in fact, pay considerably more than the average price of the best grain sold throughout the season. The sales of a few high market days, in which prices rise much above the level of the season, thrown into the general mass, may cause the highest fiars to be much above the current value of the best grain. It would seem to be a fairer mode to strike the fiars from the weekly prices in Haddington market; the averages of all the market-days would give the general average, while the highest prices on each market-day, thrown into one mass, and the lowest into another, would furnish the true average of the best, and of the worst grain.

In order to give an idea of what have been the average prices of grain in this county, for some years past, according to the present method of ascertaining them, a list of the fiars is subjoined, extending from 1794 to 1804 inclusive.

CROP, 1794.

	First.			*Second.*			*Third.*		
	£.	s.	d.	£.	s.	d.	£.	s.	d.
Wheat	1	5	6¼	1	3	11¼	1	2	3¼
Barley	1	2	1¾	1	1	2	0	19	8½
Oats	0	15	2¾	0	14	10	0	14	1½
Peas	0	16	4½	0	15	6	0	14	9½

CROP, 1795.

Wheat	2	6	9	2	4	4½	2	0	4¼
Barley	1	5	2¾	1	3	10¾	1	1	11
Oats	1	1	3¾	0	19	5¾	0	18	2¾
Peas	1	0	4	0	18	9	0	17	9½

	First.			*Second.*			*Third.*		
	£.	s.	d.	£.	s.	d.	£.	s.	d.
CROP, 1796.									
Wheat	1	7	2½	1	5	10½	1	4	5
Barley	1	5	0¾	1	2	8½	1	0	6¼
Oats	0	16	1½	0	14	11	0	14	0
Peas	0	14	3	0	13	5¾	0	12	8½
CROP, 1797.									
Wheat	1	4	9½	1	3	0½	1	1	7
Barley	0	19	4¾	0	17	9¼	0	15	5
Oats	0	14	2	0	13	0¾	0	12	0
Peas	0	13	1½	0	12	4¾	0	11	8
CROP, 1798.									
Wheat	1	3	8	1	2	8	1	2	0
Barley	0	19	5¼	0	18	6	0	17	9½
Oats	0	15	0½	0	14	8	0	14	0¾
Peas	0	12	10	0	12	5	0	11	11¾
CROP, 1799.									
Wheat	2	3	9	2	0	9¾	1	14	8
Barley	1	14	8	1	11	11	1	9	2
Oats	1	12	4½	1	8	7½	1	5	0½
Peas	1	18	1½	1	13	1½	1	8	6¼
CROP, 1800.									
Wheat	3	7	3¾	3	3	1¾	2	15	3¼
Barley	2	12	5	2	6	11¼	2	2	4¼
Oats	1	18	11½	1	15	8	1	10	9¼
Peas	2	6	2¼	2	1	6	1	16	8¾

CROP, 1801.

	First.			*Second.*			*Third.*		
Wheat	1	17	5¼	1	15	7	1	12	4
Barley	1	8	5	1	6	1½	1	4	4
	£.	s.	d.	£.	s.	d.	£.	s.	d.
Oats	0	18	7¼	0	17	4¼	0	15	11
Peas	0	17	10¾	0	16	10¾	0	16	0¾

CROP, 1802.

Wheat	1	12	1½	1	8	8½	1	6	11¼
Barley	1	0	8¼	0	19	2¾	0	17	1½
Oats	0	16	6½	0	15	4¼	0	15	4¼
Peas	0	16	1½	0	15	6	0	15	0

CROP, 1803.

Wheat	1	7	5½	1	5	11¾	1	4	7½
Barley	0	19	2¼	0	17	10¼	0	16	6½
Oats	0	18	6	0	16	11½	0	15	7
Peas	0	17	10	0	16	10	0	15	10¾

CROP, 1804.

Wheat	2	6	1¼	2	2	4¼	1	51	7
Barley	1	13	3½	1	11	6¼	1	9	5
Oats	1	1	2½	0	19	8	0	18	5
Peas	0	19	2¼	0	71	11½	0	16	11¼

CHAPTER XVII.

OBSTACLES TO IMPROVEMENT.

In the best improved districts some improper practices may be supposed still to remain, and some prejudices to be entertained against things, which more mature experience shall prove to be beneficial. There are disadvantages of soil and climate too, from which few places are entirely exempted, and for which human industry cannot provide a perfect cure. Man is not answerable for the obstacles which nature has opposed to his exertions; but, in as far as his progress is impeded by his own prejudices and by customs, which he has established, he deserves to be condemned even for want of success. There are perhaps fewer artificial obstacles to improvement in this county than in most others, and those which do exist, are neither peculiar to it, nor retained so much, it is probable, through obstinacy, as through inattention to their effects. The mutual interest of landlord and tenant seems, upon the whole, to be sufficiently understood, and the connexion between them regulated on fair and liberal principles. There are still some things, however, which may be said to shackle the husbandman in his exertions, and consequently to impede the progress of improvement.

It may be laid down as a first principle, that whatever deters the tenant from laying out his capital on the ground, operates as an obstacle to the improvement of the soil. The merchant and manufacturer lay out their capital without hesitation, because it is liable to no other risk than what results from the ordinary hazard of trade; and it is this freedom, which causes trade to flourish. If the cultivator of the soil had no other danger to apprehend, except that which results from bad seasons, he would lay out his money with equal confidence; but if he labour under disadvantages peculiar to himself, they ought certainly to be removed, in order that he may be placed on an equal footing with other traders, and be equally successful. Farmers are not here, and perhaps no where in Britain, placed on that equal footing with other traders, which the interests of agriculture require.

One of the first and greatest obstacles to agriculture in this county is, that the farmer has no power to dispose of his lease. It is understood, that by the common law of Scotland he has not the liberty of reletting, unless it be expressly secured to him in the deed, under which he possesses. On abstract principles, nothing appears more absurd or unjust; the shop-keeper may let his shop, deliver over his goods to his successor, and take a sum of money for giving up an established business. On what principle ought the farmer to be prohibited from transferring his esablished business to another, for a valuable consideration? Why should he not relet his farm, sell his stock, if he please, and put another in possession of that trade, from which he chooses to retire? By every rule of fair reasoning, the cultivator seems entitled to the same power over his trade as the merchant and manufacturer. It sometimes happens, however, that what appears just in theory, would be unsafe in practice. Let it be considered then, whether the interest of agriculture be injured in fact, as it seems to be, in theory, by not placing the farmer's lease on the same footing with any other part of his property. There are three very supposable cases, in which it would be clearly for the interest of the farmers that leases were subject to the same laws as other property: in case of a tenant wishing to transfer his lease to another; his becoming bankrupt; or, his dying without an heir capable of managing a farm, or being disposed to engage in such pursuits.

It is impossible to specify the various inducements, which farmers may have for reletting their farms; but there are some of them so obvious, that they cannot be overlooked by any person. A farmer may be desirous of retiring from the fatigues of an active employment, and have a favourable opportunity of obtaining from another, remuneration for the expense, the labour, and the risk, at which he has brought his lands into an improved state. He may have highly improved his farm, and desire to withdraw his capital for the purpose of employing it, in improving some other place, which promises a good return for his money and labour: he may find, that he has engaged in an undertaking not unprofitable in itself, but above his means, and wish to give it up, before he be ruined by it; or, finally, he may choose to withdraw his capital from farming, in order to employ it in some other way more to his taste. These are certainly all very supposable cases, and in every one of them, it would manifestly be for the advantage of the individual, that he could dispose of his lease without lying at the mercy of his landlord. And why should he, more than other men, lie under a restriction, which exposes him to the chance of not being able to enjoy a manifest advantage, or of incurring a certain loss? It is nothing to the purpose to allege, that proprietors will seldom withhold their consent, when tenants can dispose of their farms to manifest advantage; proprietors, who thoroughly understand their own interest, will not, but why should any have a power which some may abuse?

Now it certainly requires no great acuteness to perceive, that whatever *may* prevent a person from drawing in, his money, or deriving full benefit from it, *must* render him cautious about laying it out. Ask any intelligent and considerate farmer, whether, if he had no prospect of leaving his lease to a person, whose interest he regarded as his own, he would lay out his money as freely in draining, liming, manuring, &c under a restriction not to transfer his lease, as he would do, if he might dispose of it at his pleasure. The question would be easily answered; in case of having full power of his lease, he would consider all money laid out on improvements, as put to interest, and likely not only to yield him some advantage in the mean time, but an ample remuneration if he should relet his farm; on the other hand, if he had not that power, he would regard all the money laid out on improvements, promising only a distant return, as probably thrown away.

Supposing a farmer to become bankrupt, it is neither just nor reasonable, that his creditors should be prevented from disposing of his lease to the best advantage; they could, in most cases, do nothing better than sell the reversion of it by public auction, but they are debarred from this by the law, as it is understood at present to stand; they may often have the mortification to see themselves deprived of the benefit, which might soon have been derived from improvements effected perhaps in a great measure by their own money. It is easy to see how this may frequently operate against improvements; a farmer, whose solvency is doubtful, is less likely to obtain credit than any other person in similar circumstances; he is regarded something like the spendthrift heir of an entailed estate, whose property is sufficient to pay his debts, but placed beyond the reach of his creditors. It is not extravagant to suppose, that farmers might frequently be saved from bankruptcy, if they could give a proper security on their leases. A little money, advanced at a particular crisis, might carry matters on, and enable a person at last to fulfil all demands, and have a comfortable reversion to himself, which without that aid, he could not have accomplished, nor even have paid his debts.

It sometimes happens, that a farmer at his death leaves a number of children, whose principal support is to be derived from his lease; while none of them can direct the affairs of a farm, they could adopt no plan so profitable as that of selling the lease, and yet they are often, either forced to lie at the mercy of servants, who may be ignorant and careless, or throw up that, from which they were entitled to expect much benefit. A widow and a number of young children often struggle to carry on the business of a farm, which in their own hands yields them nothing; but, if disposed of to a proper person, might have rendered them comfortable. It may happen too, that a tenant, in the prospect of his demise, instead of leaving his lease exclusively to one member of his family, would choose to convert it into money, and divide the produce equally among all. In fine, his heir at law may be a person, for whom he has no reason to entertain much regard, and therefore he would rather leave his lease, or the advantage resulting from it, to another more deserving.

In all these supposable cases, it is very plain that the tenant's interest and comfort would be greatly promoted, if he could dispose of his lease in the same manner, that a merchant or manufacturer can dispose of his trade; and it is equally plain, that the very idea of wanting this advantage must often cramp him in his exertions, and render him less liberal in laying out capital and employing labour, which cannot be restored for a considerable time. In no branch of trade is it more necessary to assure the trader, that in laying out money, nothing shall prevent him from reaping the profit, which it may eventually yield. When a tenant drains, limes, or even gives his ground a complete fallow, he is to be paid in several successive years; in proportion then, as you diminish his security for reaping, in every possible way, and to the last moment of his contract, all the advantage of his labour and expense, you lessen his inducements to do more than is barely necessary; you reduce him in some degree to the condition of a tenant at will, or a life-renter. There are many cases, it will readily be allowed, in which want of power to dispose of a lease will have no such influence; but it is sufficient for the argument, if there are many in which it has and must have this effect.

It will not certainly be maintained, that the want of this power, though unfavourable to the tenant, is not an impediment to improvement. Whatever is injurious to the tenant must operate against the landlord, and ultimately against the country. If the husbandman be discouraged from improving, the land of the proprietor does not increase in value, and the public receives not that advantage in increasing fertility, which might be enjoyed. The idea is as unjust as it is illiberal, that the interests of the landlord and of the tenant are necessarily at variance, and that they should always be jealous of each other. No doubt it is natural for the former to desire as high a rent as can possibly be obtained, and equally natural for the latter to desire his land as cheap as possible. But, if the landlord, by excessive rent or severe restrictions, cramp the tenant in his improvements, he must prevent the amelioration of his property, he is in fact killing his hen that lays the golden eggs; on the other hand, the farmer cannot raise heavy crops to enrich himself, without increasing the value of the proprietor's land, nor can he injure that land without injuring himself. In reality, the ultimate object of both landlord and tenant is, to bring the soil to the highest possible state of fertility; in attaining this object the public is equally interested; and it must be manifest to every one capable of the least reflection, that the direct and only way to accomplish what is universally so desirable, is to encourage the husbandman to exert all his skill and to employ all his capital. The proprietor would consult his own interest, were he to offer a premium, for the encouragement of his tenants in making improvements; but this is not often necessary, he needs only to let them alone; let him give leases of a sufficient length, containing proper clauses for protecting his property during the last three or four years; the rest may be safely left to the industry of the tenants, prompted by their own interest. If the proprietor take care not to let his land to an improper person, he may be satisfied, that, whether it be occupied by the original lessee or a substitute, it can be in no danger; and he will be so much the more certain of his rent, as the security of two or more persons is preferable to that of one. Nothing is contended for, that can be injurious to the interest of proprietors; they are not required to give up their claim on the person with whom they, originally transact, and their security cannot, in any respect, be lessened by the intervention of another party to the agreement; it cannot diminish the advantage of the lessor, if the original tenant derive some profit by a transfer of the lease, for the substitute cannot afford him this profit, without increasing the productive powers of the soil, and consequently the value of the property. It may be affirmed with confidence then, that the law, which hinders a tenant from disposing of his lease, like any other piece of property, is extremely injurious to the interests of agriculture; it is the greatest obstacle to improvement, which exists in this county, and while it prevents the farmer from laying out his capital with perfect freedom, it ultimately injures the proprietor, by preventing his land from attaining its highest value.

Improvements are seldom obstructed in this county, as in some others, by restrictive covenants. There may perhaps be restrictions of this nature in a few leases, but there are scarcely any, which can be regarded as in any material degree hostile to improvement. In most leases there are restrictions with regard to the management, during the last four or five years; this, however, is perfectly reasonable, and cannot be regarded as any obstacle to improvement; during this period, improvements are not executed, and it is right, that the tenant want the power, if he has the inclination, to injure the property, which he is about to leave. Landlords, in general, are perfectly satisfied, that they cannot expect good rents, unless they leave tenants to carry on business in their own way. They leave them therefore perfectly at liberty to manage as they please, with the exception just now stated; and that chiefly respects the extent of land to be kept in grass during the last years of the lease, and sometimes the quantity of summer fallow at the conclusion.

All leases contain a general clause binding the tenant to labour, according to the rules of good husbandry; the utility of this clause is extremely questionable, because it seems incapable of doing any good, and often occasions much mischief. Nothing can appear more harmless than binding the tenant to labour, according to the rules of good husbandry, and, in fact, it is generally harmless, because it binds him to nothing; the rules of good husbandry, upon every principle of fair interpretation, must mean the best management according to his circumstances, and of that he ought to be the best judge; but then these rules, which in reality mean nothing, can be made according to the opinion of those, who apply them, to mean any thing. If a landlord conceive a dislike to his tenant, or imagine that he is not managing properly, the rules of good husbandry afford him convenient ground for an action; and the mischief of such litigations is, that, though they may be carried on long, and greatly to the injury of both parties, they never determine any thing in the end; they are not decided on any general fixed principle, either legal or agricultural.

The laws of entail may be regarded as opposing another considerable obstacle to improvements. These operate more directly against proprietors, and rather indirectly against farmers, but chiefly against the public. Though relief bas been partially obtained in favour of improvements, yet it is impossible that proprietors of estates, which are strictly entailed, can ever enter as heartily into the spirit of improving, as those who are differently circumstanced. A prudent man will not, in many cases, lay out much money to encrease the value of an estate, when the advantage is not likely to be received by himself, and when those, who are to enjoy the benefit, can be made to bear only a part of the burden. A proprietor is often, on that account, discouraged from executing these improvements, which fall properly within his own province, and restrained from entering into those contracts with his tenants, which would enable them to improve. This kind of restriction particularly affects planting, an improvement of great consequence in many respects; few, who plant trees, can expect to fell the timber, and the conviction of this, as things stand at present with regard to entail, prevents plantations from being executed in many places, where they would be highly advantageous.

The mode of letting land in this county may be regarded, if not as an obstacle to improvement, at least as unfavourable to the interest and comfort of the farmers. The general practice is to advertise the farm, when the current lease is within a short period of expiring, and to receive sealed offers from all, who choose to make application. Whether the dread of incurring some odium, in case of seeking an extravagant rent, or the expectation of obtaining more in this way than they could decently ask, gave rise to the custom, it is certainly illiberal.—Why should not the proprietor, like every other man, who has goods to dispose of, set a value upon his land? and why should he not give the first offer to the present occupier, if he be satisfied with him; if not, tell him, that he does not mean to treat with him? If the proprietor be not a proper judge of the value of his land, let him consult those on whose judgment he can rely. No person will blame him for asking a sufficient rent, only let it be known what he would have; those who make an offer, will know at once whether they can be successful, and not be kept in suspense for months.—The present practice is attended with such obvious inconveniences to tenants, and is so illiberal in its principles, that to mention it is sufficient condemnation.

It is proper to state, however, that this, though the general, is not the universal practice. There are several proprietors, who always make an offer to the tenant in possession, before they go to the public at large. This conduct is liberal, and it is likewise just; for certainly the person, who has rented a farm for nineteen or twenty years, is entitled to such a preference, provided there be no objection to his character or solvency. If he be a good farmer, no one can pay more rent, nor indeed as much, because he must be intimately acquainted with the nature and quality of the soil, and he will give as much as he possibly can, rather than leave a place to which he is attached. If he be a bad farmer, the case is, no doubt, different; and it cannot be expected that the proprietor should give a premium to his negligence or indolence, by letting him his farm at a lower rate than a person of another description would give. It may safely be laid down, however, as a general rule, that, other things being equal, the present occupier of a farm should be preferred to every other person, when a new lease is granted.

In short, every thing that tends to discourage the profession of a farmer, to embarrass his exertions, diminish his fair profits, or lessen his assurance of reaping the full benefit of all his labour and expense, must be regarded as hostile to improvements in agriculture. Every thing of this nature must tend to divert capital from the cultivation of the soil, and throw it into other channels. It must not be said, that the obstacles to improvement, which have been mentioned, are imaginary, because agriculture, notwithstanding, flourishes. These obstacles, it will be readily admitted, are far less considerable than some, which exist in other places, and therefore our rural affairs are proportionably prosperous: but there is no reason to doubt, that, if these were removed, we should prosper still more. A giant may travel at a tolearable rate under a load, which would crush a dwarf to death; but it would be erroneous to conclude, that he could travel no faster, if his load were removed.

CHAPTER XVIII.

MEANS OF IMPROVEMENT, AND MEASURES CALCULATED FOR THAT PURPOSE.

EAST Lothian has already advanced so far in the career of improvement, that it is difficult to point out any specific plan, by which its progress can be greatly accelerated. Not, that it has reached perfection, nor that the circumstances of soil, climate, and local situation, prevent it from proceeding further, but it seems to be in that track, which will lead it forwards as fast as the ordinary progress of things admits. There are as few artificial obstacles here, it has been already noticed, as in any district in the island; the farmers possess as much information and spirit as in other places, and have capital sufficient for every purpose, while the proprietors pursue an enlightened and liberal line of conduct; improvements therefore are likely both to be contrived and executed as fast as can reasonably be expected. Though the county has advanced far, however, in agricultural pursuits, and is still advancing, some things might be removed, which certainly retard that progress, and some measures might be adopted, by which it could be somewhat accelerated.

The first thing then certainly, which can be done to promote improvement, is to remove those obstacles, which were mentioned in the last chapter; while these continue, agriculture may still advance, but its progress must necessarily be slower, and it never can reach that perfection of which it is capable.

It would be of great importance, that leases were placed on the same footing with other property, and every tenant understood to have a right to assign or transfer his farm at pleasure, unless he choose to forego that right by positive agreement. If a legislative provision to this purpose could be obtained, it would be highly desirable, because it would leave nothing to the hazard of carelessness or ignorance, in the manner of framing the contract, and because it would place things on what seems to be their natural footing; the tenant would be master of his own property, (for his lease is certainly his own property), unless he chose voluntarily to relinquish his power. As the case at present stands, the natural order is inverted; the usage of the country deprives him of this power, unless he has been able to secure it by positive stipulation. If a legislative provision could not be easily obtained, the end might be attained in the framing of the lease. Every lease then, in our opinion, should be granted to the tenant, his heirs, successors, and assignees, who, of course, in the event of succession, would become bound to fulfil all the conditions of it. The tenant, in this case, would be at full liberty to go on with all his improvements; he would lay out his capital freely, without taking any other calculation into view, than, whether the ground would pay for his labour and expense, within the period of the lease. He would know, that if he did not personally reap all the benefit of his improvements, it would be reaped by some person in his right, provided, it could be done within the stipulated years of his possession.

The obstacle, which the laws of entail oppose to improvements, cannot be removed but by the legislature. It is surprising, that these laws are not abolished, or modified in some shape, since they are so injurious to the public in several respects, and profitable in none. One would imagine, that all *actual* proprietors themselves would wish to be freed from such restraints; it would be agreeable to the feelings and wishes of every man to have the entire management of his own property, and to be able to execute what improvements he pleases in it; nor could it render their estates less secure than that vast mass of property of various kinds, which is left in perfect freedom. The only class, who seem to be interested in preserving these laws, are collateral and distant heirs of entailed estates, whose prospects might be somewhat changed by abolishing them. It may be doubted, how far it were wise to impede the improvement of the country, for the sake of their distant expectations, even if the sacrifice of their prospects should unavoidably follow; but perhaps they might be otherwise secured.

It deserves to be considered, whether the common method of letting land ought not to be abandoned, on account of its tendency to discourage the investiture of capital in agricultural pursuits. The landlord, wherever he has no objection to the person, who offers to treat for a lease, should specify the sum, which he is willing to accept, and not leave the offerer in that state of uncertainty, which suspends all exertion, and frequently, at least if he be the present occupier, causes him to suffer considerable inconvenience and loss in the management of his farm stock. But what might be of great importance to the progress of improvements, would be to let all farms three or four years, at least, before the conclusion of the current lease. Improvements would, upon this plan, proceed without interruption, that is wherever a farmer continues in possession of his farm; but, according to the custom of not taking offers for a new lease, till the old one is within a year or two of expiring, improvement is always at a stand during the fourth part of every lease. Wherever such a delay takes place in granting a farmer the renewal of his lease, the public loses a fourth part of the advantage, which would be derived by a continually progressive state of improvement. The loss may be regarded as even greater than this, for every tenant, upon the present system, takes as much from the ground as he possibly can, and at as little expense, during the last four or five years; and in spite of all the protecting clauses that can be invented, he may do as much mischief in that time, as the land shall hardly recover during the third part of the next lease. If the plan were adopted, which is here recommended, draining, liming, manuring, and the regular rotation of crops, would proceed without interruption, and the ground would be in progressive amelioration. The only objection of any consequence, to which this method seems liable, is, that by letting his land so early, the proprietor would lose the advantage of that increase of rent, which might take place during the four or five years of the lease, yet to run.— This loss, however, could never happen but once, for after the plan was adopted, the time of letting would ever afterwards return at the period which constitutes the length of the lease. If any disadvantage were experienced in the first instance, it may be safely affirmed, that it would be more than compensated, in future, by the constantly increasing value of the property. There is nothing to be apprehended from an outgoing tenant knowing so long before, that he is to remove; every one at present pursues the same plan, as if he were certain of removing; his own interest would prevent him, in the uncertainty of removal, from doing any thing directly to injure the soil, and his interest, in the uncertainty of continuing, prevents him from doing any thing to improve it.

There are few restrictive covenants, and no personal services, which require to be laid aside, there are no undefined burdens, which may increase as improvement advances; but certainly that vague unmeaning clause to labour according to the rules of good husbandry should be expunged. If no definite restrictions ought to be imposed, surely no good reason can be assigned for retaining that, which produces no advantage on either side, and frequently occasions such mischief by the disputes, for which it affords a handle.

Some plan ought to be adopted for preventing the litigations, which too often take place between outgoing tenants and their successors, about straw and dung. Indeed these are often very much owing to the inattention of landlords in the first instance, in not taking care to have the clauses, which respect the articles in question, expressed with accuracy and precision. They sometimes also manifest too much solicitude to devolve upon the new tenant the burden of settling with his predecessor every thing, that they can possibly throw off themselves. This is the very reverse of what ought to be; the landlord should transact with both, receive from the one, and deliver to the other; in nine cases out of ten, where tenants enter into the hottest disputes and most expensive contests with one another, neither of them would think of contending with the landlord. It is very probable, however, that one of the parties, and possibly that both, may be dissatisfied with the landlord's conduct, though neither of them venture to go to law with him. Perhaps then it might be of public utility, and tend greatly to prevent private disputes, were all the straw and dung remaining on the premises, at the end of the lease, to be sold by auction. The tenant, who leaves the farm, would in this case receive market value for these articles, according to their quality, according to local situation, and according to the present demand; circumstances which are not perhaps always duly attended to, when such things are delivered at the valuation of neutral persons. Nothing, in general cases, is so likely to determine the just value of any commodity, as a free open sale; this would particularly hold, we should suppose, of commodities like these.— No apprehension need be entertained of the ground being injured by the loss of manure, which properly belongs to it. The tenant, who enters upon the farm, will always have an advantage, when these articles are exposed to sale, equal to the expense, which would be secured by carrying them to a distance. If he did not need them, from the condition of the soil, or determination to adopt a different mode of management, he would not be obliged to purchase them; if he did need them, no other person could afford to give an equal price.

There may, no doubt, be, besides these, other evils of a lesser kind, for which a remedy would be desirable, but, if these were cured, by some such plans as have been hinted above, the benefit would unquestionably be considerable. These impediments present themselves to the tenant, at the very commencement of his career, and do not suffer him to advance a step freely; remove them, and his capital, his industry, and his talents, whatever they are, shall have full scope. With regard to the improvements, which may be admitted into the practice of agriculture, it would be difficult to point out any calculated for this district, which are not to a certain extent adopted; though there are some, no doubt, which might be carried much further. It shall suffice to mention a few of these.

1. *Enclosing*.—It was stated already, in a former chapter, that, according to the system of husbandry practised in East Lothian, enclosing is not an object of such importance as in some other places, and that to a certain extent, it might be an injury, instead of a benefit. Still, however, this must be regarded as absolutely necessary on some farms, and as advantageous to a limited extent, on all. The Lammermuir district might be greatly benefited by enclosures; it would very much aid the farmers in improving their sheep, and it would considerably lessen their expense, as their flocks would require less attendance. Not only should every farm be surrounded by a complete fence, but it should be subdivided into as many enclosures, at least, as the farmer wishes, at any time, to keep separate flocks. In the lower parts of the county, if farms be subdivided at all, the enclosures should be large, where the ground is so valuable, as little as possible ought to be lost. Even here, however, every farm should be what is called *ring-fenced*, that is, separated from its neighbours by a general enclosure. This is an improvement very much wanted in the eastern part of the county, where some large farms are open on all sides; even on the public road, for some miles in continuance, there is no fence to protect the farmer's property from depredators, and every one will perceive, that considerble loss must often be sustained from this circumstance.

2. *Draining*. This improvement receives much attention from all good farmers, and is not entirely neglected by any. In many places however it might be carried

to much greater perfection. No species of grain, cultivated in this country, can thrive with its roots placed in stagnant water, and it is impossible to say how much loss may be sustained, in the best improved districts, by suffering even small spots to continue wet.

3d. *Liming*.—This is another branch of improvement, from which immense benefit has been derived; it has been carried on to a great extent in this county of late years, and with astonishing success; but the use of it may yet be extended much further. If sufficient attention be paid to the quantity applied, and to the mode of application, it is probable that every kind of soil will be benefited by it, unless that which is completely exhausted, and here the labour and expense are lost. It is probably from inattention to this circumstance, that doubts, altogether groundless, have been sometimes entertained respecting the efficacy of lime. Where land is impoverished, means must be employed to render it moderately rich before calcareous matter can act to advantage. Another thing necessary to be remembered is, that, where lime has been formerly applied, the dose requires to be augmented in order to take effect. Ignorance of this has led to the opinion, that calcareous substances cannot be above once profitably applied to the same soil: land which has received this application seems to bear some analogy to constitutions which have been accustomed to the use of stimulants; to produce the same effect the dose must be continually increased.

4th. *Planting*.—Plantations are formed for the purpose of ornament, of shelter, or of profit. The first of these objects is little connected with agricultural improvement, it may therefore be left to the direction of fancy and of taste; but the other two are necessarily connected with the interests of agriculture, and merit attention from all who wish to multiply the productions of the earth. These objects have not been sufficiently attended to in this county; what woods we have, though some of them have become very profitable, were planted perhaps more for the purpose of adorning gentlemen's seats, than yielding advantage. It is certain that there are many situations in which the ground could not be so profitably employed as in planting. Patches of thin poor soil, steep places which could not be cultivated by the plough, knolls which are bare of soil, and small irregular spots, which neither can be conveniently thrown into other fields nor advantageously laboured by themselves, might, if planted with trees properly chosen, become in time as valuable as any land around them. The larch, the Scotch fir, and the beech, are valuable trees, and may be reared to advantage, where neither corn nor grass could do much good; and while every one would wish to see all the ground occupied with something profitable, it is an object of public importance to encourage the growth of timber, wherever it is likely to succeed, and, at the same time, not supplant some more valuable crop.*

Where plantations cannot be formed with a view to profit, on their own account, that is to employ ground in this way that could not be so useful in any other, they may be extremely beneficial as shelter to fields near them. Land will be very considerably increased in value merely by being sheltered; and it is scarcely credible to what distance a belt of thriving trees, judiciously placed with regard to the prevailing winds, will afford shelter by interrupting the current of the air and weakening its force. Even where land is good, it may be worth while to plant a part of it to protect the rest, if severely exposed; but the places, generally, which have most need of this protection are naturally poor and barren; planting a few acres, therefore, is not to be regarded as taking much away from the main objects of husbandry. The planting of such belts, however, and of hedge-rows, is never to be regarded as an improvement, where the soil is good and shelter not needed; they are indeed attended with great and manifest loss, for, besides the ground which they occupy, they render every sort of corn crop, for some distance from them, of little value.

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* Almost every farm has as much waste land as would, if rightly managed, produce timber sufficient for its own demands; to apply it to this purpose, would not only be a great saving, but a matter of great convenience, and the quantity might be secured by planting every year a number of trees equal to the number cut down.

It might tend very much to advance this branch of improvement, to give tenants encouragement to plant such parts of their farms as are useless for other purposes. They ought to be paid at the end of their leases, according to the value of the plantations which they have reared. The prospect of ultimately deriving benefit from ground otherwise useless, would be sufficient inducement to plant, and the view of being paid in proportion to the value of the trees, would prompt them to take care of what they had planted. This seems to be the only plan that would ensure the planting of numberless small patches, which proprietors are likely to overlook, or not think worth their attention. At present, however, no farmer will be so imprudent as to plant an inch of ground, though he may have a good deal in his farm unfit for any other purpose, because he can neither cut a tree, nor claim from his landlord any compensation for his trouble and expense.

If improvements are in any case impeded in this county, or not carried on with sufficient success, it cannot be said to be for want of the means; these are furnished every where in abundance. Lime may be had in all parts of the county in great plenty, and at a moderate expense of carriage; if this article were very distant or very dear, it would be found a serious obstacle to an important branch of improvement; on this score however we have nothing to complain of. The county, by possessing a large extent of coast, has an opportunity to derive much benefit from the sea-weed, which is found to be an excellent manure. This is an advantage which might be still further improved, if those who enjoy it were all sufficiently careful in collecting every other kind of manure; with this peculiar source of fertility they might, in fact, bring their lands into that state which would admit of sparing a portion of manure to the interior of the country. There are several towns and villages likewise from which a great deal of manure is obtained. The great variety of soils too, almost on every farm, should be ranked among the means of improvement which this county possesses; this circumstance affords opportunity for carrying on various systems of husbandry in subserviency to one another. To all these advantages must be added that of a ready market, where every article of farm produce may at any time find a purchaser. This is not the least important of those circumstance which favour the improvement of the soil; the farmer will never exert himself with energy to multiply the product of his fields, unless he have the prospect of getting it easily sold.

Though East Lothian has advanced far in improvement, and presents a spectacle highly gratifying to the eye, which delights in contemplating the prosperity of the country, the picture is, no doubt, in some places deficient in uniformity, in correctness Here we see something deformed, there we perceive something wanting; we can conceive many things which are requisite to perfect the beauty of the piece, and render it uniformly pleasing. If the few obstacles which have been noticed were entirely removed, improvements would certainly advance more rapidly; if enclosing, draining, liming, and planting, were carried forward as far as circumstances require, the face of the county would be greatly beautified, and its produce much increased.

Many improvements of great importance may be said to have been introduced into this county at a late period, yet they have now become universal, and are practised with a degree of perfection not often excelled. We need no better proof of the improved state of husbandry in this district, than the price which its grain bears in the market, the amount of its rents, and the opulence of its farmers. Every effect must have an adequate cause, there must be something in the soil, in the climate, or in the moral excitements to industry, which produces these consequences. The soil is not superior to many parts of the kingdom, in fact, it is inferior to some places which are behind it in improvement; the climate is far from being remarkably genial, for there are some important crops, grass and turnips, for example, which are occasionally almost lost from its uncertainty. We must seek this superiority then in moral causes; these we shall leave the reader to collect from the preceding pages, and only take the liberty to recapitulate a few of the circumstances, which, though not peculiar to this county, may not be found united in the same manner in many other places.

All ground is occupied on leases of moderate length; there are few or no restrictive covenants that can be said materially to affect improvements, but tenants are left freely to pursue the plans which seem best to their own judgments, or are most agreeable to experience; the farms are generally large; no unknown burdens lie upon the tenantry, which can increase with their increasing activity; when a person takes a farm he knows every burden which he has to bear during the currency of his lease, except those taxes which he pays in common with all his fellow subjects. Add to these, that the farmers possess abundant capital to execute what improvements they deem necessary. If the reader is not disposed to regard these as the principal causes which have tended to raise the husbandry of East Lothian to its present respectable rank, he may try to find others more adequate to the effects. It will probably be found, however, that the state of agriculture *generally* corresponds to the prevalence of these causes, and that, where they all operate freely, a naturally poor district may rank higher than others which enjoy a richer soil and more genial climate.

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APPENDIX.

No. I.

ANALYSIS OF VARIOUS SOILS.

Upon a subject so important as the soil of an extensive and valuable district, something more than a bare enumeration of the different kinds, and the quantity of each, appears necessary; indeed if it is ever expected that agriculture shall become a perfect science, and have its operations directed by fixed laws or principles, a correct knowledge of the nature and properties of different soils must appear indispensable, as without that, it will be found impossible either to remove the faults that occasion sterility, or employ such articles as have a tendency to render it fertile, with any degree of certainty or advantage.

That point gained, the cultivator will no longer grope in the dark with regard to his operations; knowing the principles contained in his soil, he will readily understand the nature of the compounds formed between these principles and the manures he employs in that way, the application of fertilizing substances, will be brought to a degree of certainty greatly beyond what is at present known.

The following experiments were made in the county of East Lothian with a view to ascertain this point, and though they cannot be held out as perfect, it is hoped they will serve to explain the predominant qualities of each of the different soils. Though the shades of soil in this, as indeed in every other district, of equal extent are almost infinite, in making the experiments regard has been had to the terms by which they are generally known, viz. Loams, Clays, Sand, Moss, &c. leaving out those kinds that form the intermediate classes, and cannot with propriety be ranked with either. Before detailing the experiments, the following account of the different soils appears necessary.

1st. *Loams.*—The best loams in East Lothian appear to be composed of that happy mixture of ingredients calculated to give them a proper degree of cohesion, a capacity for retaining a sufficient degree of moisture, and contain within themselves a considerable proportion of the principles upon which the growth and nourishment of vegetables depend; these qualities joined to the facility with which they are worked, and the almost absolute certainty of being able to sow and reap the crops at proper seasons, render farms of that soil highly desirable, and they are accordingly keenly contested by numerous candidates at the expiration of every lease. Under the term loam is comprehended all the intermediate soils between the deep black rich earth, and the light lands bordering upon gravel, each of which is differently denominated according to its colour, depth, and other circumstances.

2d. *Clays.*—The rich clays in East Lothian are with difficulty acted upon by moisture, of which they receive only a certain quantity, and resist the introduction of more; water with difficulty passes through them, and when exposed to the action of fire, their parts acquire a strong degree of adhesion. Of this soil there is great variety in the county, and in none of the other soils are the opposite qualities of fertility and barrenness to be met with in such extremes; from the deep rich clay capable of producing luxuriant crops of every kind, to the barren till, whose nature unfits it in a great measure for vegetation; the proportion of this last classed with the thin clays is very considerable.

3d. *Sandy Soil.*—These lands are situated chiefly upon the coast, and are of different kinds, from the lightest species of loam to the naked sand composed entirely of small flints; in all of them under cultivation there is a mixture of earth, according to the proportion of which they are more or less favourable to vegetation. Within these few years considerable tracts of this soil, formerly of little value, have been brought under the plough, and made to produce excellent crops of turnips, clover, barley, rye, &c. as will be seen in a different part of this survey; but the valuable improvement upon this description of soil has been made by laying it into grass and treating it with top dressings of different kinds of soil, which when liberally applied have, in not a few instances, changed the appearance and so much altered its nature, as to render it capable of bearing a succession of valuable crops of grain.

The whole of the sandy soil in this county is evidently superinduced, the bottom upon which it is laid being uniformly of the same quality with the circumjacent grounds: the origin of this sand, which is accumulated upon several parts of the coast, has been noticed in the introductory sketch, and is owing to two causes; the first, and that which no doubt has produced the greatest part of it, has been the washing away of many points of land by the sea, by which the coast, formerly very much indented, is now rendered pretty uniform, and brought nearer to a regular figure: the second cause of its formation has arisen from the wasting of the soil in the interior during heavy falls of rain, by which great quantities have been brought from the higher grounds, and either deposited in places where the current has been less rapid, or carried along with the stream to the sea; the last, however, is a rare occurrence, unless in situations where the land declines very rapidly towards the shore; in this county however it is evident that the whole of the land upon the coast has arisen from the wasting and washing away of different points of land, while that in the interior has been produced by the washing of the rivers.

4th. *Mossy Soil.*—This, like the sandy soil, is also superinduced, the bottom being uniformly the same as that of the adjoining grounds: in the low flat parts of the county it has owed its origin evidently to the stagnation of water; in these places the moss consists of the roots and decayed leaves of aquatic plants, which are found in distinct strata, and of different kinds according to their depth.

In situations more elevated, and upon the tops of the highest hills, the moss has been formed in some cases merely by the decay of the plants, which falling down yearly, without being entirely rotted, have in process of time accumulated and formed the moss there met with; but in the hollows its formation is owing to the same causes as in the low flat parts of the county, namely, the stagnation of water, and the moss when examined is found to consist of decayed plants nearly of the same description, with the addition of a great proportion of earth washed from the sides of the hills during floods. In some parts of the county this soil has made considerable progress towards decay, and nearly resembles black rich loam, but in by far the greatest part, the roots and leaves of the different plants concerned in its formation are in a tolerably perfect state, and when freed from moisture presents little else than a collection of these.

Muirish Soil.—The muirish soil in East Lothian is of considerable extent, and like that already described, owes its origin evidently to the same cause, namely the decay of the plants that formerly occupied the surface. This soil is of two kinds, one of which is black, soft, and porous, and admits moisture in a greater degree than any other soil; it is at the same time covered with stones of a white colour; evidently whinstone bleached with an acid; the parts when examined exhibit the appearance commonly met with in turning over the ashes formed by the burning of vegetables, where the skeletons of the plants and roots are seen naked, sapless, and destitute of any of the useful properties they once contained. It is difficult to form an opinion of the cause of these appearances, or to conceive how lands that had once been covered with plants so strong and numerous as to form a thick sod, should become so barren as to be totally unfit for vegetation, as the greatest part of these muirs are. Were a judgment to be formed from appearances, fire might be supposed to have been the cause, but as the consumption of vegetables by that element, however great the waste may be of a part of their useful principles, is always productive of more or less fertility, the appearances above mentioned must be owing to causes of which no correct opinion seems to be at present entertained. This description of muir is the most barren, and its improvement the most hopeless of any soil known in the county, and no attempts hitherto made have either rewarded the enterprise of the undertaker, or held out inducements to others to follow their example.

The other species of muir soil consists, like that already described, of a stratum of vegetable substances upon the top, not of a black or burnt appearance, but resembling the plants in a dry state intermixed with earth, without having been acted upon by any thing but the weather. These, when examined, are found to contain a considerable proportion of the properties common to all vegetables, and when properly treated are capable of being converted into a soil friendly to vegetation. The stones upon this kind of muir are of the same colour with those met with upon the best soils. There are considerable tracts of this soil in the county, which by good management might be considerably improved; indeed a great part has been much ameliorated of late years, and is in a progressive state of improvement.

The above observations certainly apply either in whole or in part to soils of the same description in other parts of the island. The following experiments having been made in East Lothian belong exclusively to this survey, and are therefore inserted without any apology.

EXPERIMENTS ON THE SOIL OF EAST LOTHIAN.

ANALYSIS OF LOAM.

Exper. i.—Half a pound of black rich loam yielded upon distillation one ounce and six drams of an alkaline liquor, which effervesced with acids, and burned the syrup of violets green.

Exper. ii.—The same quantity burnt and washed with boiling water afforded an acid liquor possessing the same qualities as the former.

EXPER. III.—The same quantity, with a little quick lime added, was boiled for a considerable time in water, and the liquor saturated with vitriolic acid. The produce of this operation had a greasy appearance, resembling that which results from the decomposition of soap ley with acids.

EXPER. IV.—The same quantity, boiled without lime, and the liquor filtered through brown paper, upon being saturated with vitriolic acid, yielded a small quantity of earth resembling gypsum, scarcely soluble in water.

HAZEL-COLOURED LOAM.

EXPER. V.—Half a pound of this loam yielded, upon distillation, about two ounces and a quarter of an alkaline liquor, which effervesced with acids, and turned syrup of violets, green.

EXPER. VI.—The same quantity, burnt, and washed with boiling water, afforded an alkaline solution possessing the same properties as the former.

EXPER. VII.—The same quantity, with a little quick-lime added, was boiled in water; and the liquor saturated with vitriolic acid, yielded a greasy solution, but in less quantity than from the black loam.

EXPER. VIII.—The same quantity, but without any lime, was likewise boiled, and filtered through brown paper; the liquor, when saturated with vitriolic acid, yielded a kind of gypsum similar to what was obtained from the black loam, but in greater quantity.

LIGHT LOAM BORDERING UPON GRAVEL.

EXPER. IX.—Half a pound of light loam yielded upon distillation, about two ounces and a half of an alkaline liquor, possessing the same properties as that obtained from the high-coloured and black loams.

EXPER. X.—The same quantity of this loam burnt, and washed with boiling water, likewise afforded an alkaline liquor.

EXPER. XI.—The same quantity, boiled with quick lime, and treated with vitriolic acid, as in the former experiments, afforded an oily matter, but in smaller quantity than in either of these.

EXPER. XII.—Some of the same soil, but without any lime, was boiled in water, filtered through paper, and saturated with vitriolic acid; the produce was gypsum as in the two former experiments, but in much greater quantity.

EXPER. XIII.—A part of this soil was burnt, and tried with the magnet, but very little iron was discovered either in it, or any of the other loams.

From the above experiments it would appear, that the principal constituent parts of the different kinds of loam, upon which they were tried, are, vegetable and calcareous earths, oil, alkaline salts, and an inconsiderable quantity of iron. The deep black loams seem to contain considerably more oil than any of the other two, but less alkali and calcareous earth; which, in some measure, accounts for the inactive nature of some soils of that description in this county, which, by no means, yield crops equal to what might be expected from their appearance. The hazel-coloured loam contains less oil than the black, but a greater proportion of alkaline salts and calcareous earth; owing to which, all the loams of that description in East Lothian are more active, and produce better crops than the former. The light loams, from the circumstance of their containing less oily and more alkaline and calcareous matter, are the most active, and are commonly termed sharp lands.

EXPERIMENTS ON CLAY.

EXPER. XIV.—Half a pound of clay of a quality approaching to loam, but possessing considerably more cohesion, yielded, upon distillation, one ounce and a quarter of an alkaline liquor, which effervesced with acids, and turned syrup of violets, green.

EXPER. XV.—The same clay burnt, afterwards pounded, and washed with boiling water, yielded an alkaline solution possessing the same properties.

EXPER. XVI.—The same soil, mixed with quick lime, was boiled for a considerable time in water, and the liquor strained and saturated with vitriolic acid. It was then set to cool, and, when cold, filtered a second time, when it yielded a quantity of oily matter, in the proportion of nearly one half more, than was obtained from the richest loam.

EXPER. XVII.—The same soil boiled in water without any addition, and the liquor strained and saturated with vitriolic acid, yielded gypsum in small quantities.

EXPER. XVIII.—The magnet, applied to this clay, discovered iron, but in small quantity.

STRONG CLAY.

EXPER. XIX.—Half a pound of clay, taken from the surface of a field, of a very strong texture, yielded, upon distillation, one ounce of an alkaline liquor, possessing the same properties as in the foregoing operations.

EXPER. XX.—The same soil burnt, and afterwards well pulverized, and washed with boiling water, afforded an alkaline liquor possessing the same properties as in the foregoing experiment.

EXPER. XXI.—The same quantity was mixed with potash and lime, and boiled for a considerable time in water: the liquor, when strained, was saturated with vitriolic acid, and afforded an oily matter, but in greater quantity than in Experiment XVI.

EXPER. XXII.—The same soil, boiled, and treated with vitriolic acid, yielded gypsum.

EXPER. XXIII.—The same soil, burnt, and examined with the magnet, discovered iron, in greater proportion than was met with in Experiment XVIII.

CLAY TAKEN FROM THE TOP OF LIMESTONE.

EXPER. XXIV.—Half a pound of clay, taken from a stratum of limestone, where the rock was within a foot of the surface, yielded, upon distillation, about one ounce and a half of a liquor, that effervesced with acids, and seemed to possess all the properties of an alkali.

EXPER. XXV.—The same quantity burnt, and afterwards broke small, and boiled, yielded a liquor possessing the same properties.

EXPER. XXVI.—The same clay, treated with lime and potash, and afterwards saturated with vitriolic acid, afforded an oily matter, but in smaller quantity than was obtained in Experiments XVI or XXI.

EXPER. XXVII.—The same clay, boiled in water for two hours, and saturated with vitriolic acid, let fall a considerable quantity of gypsum.

EXPER. XXVIII.—The same clay burnt, and examined with the magnet, discovered no iron.

Similar trials were made upon loam and gravel situated above limestone, with nearly the same result.

EXPERIMENTS UPON TILL.

In East Lothian, the name of till is given to such of the thin clays as are blue, yellow, and red colour, and, at the same time, barren.

EXPER. XXIX.—Half a pound of blue till yielded, upon distillation, only an insipid water.

EXPER. XXX.—The same quantity burnt, and boiled in water, afforded a liquor, which did not effervesce with acids, but turned the syrup of violets, green.

EXPER. XXXI.—The same quantity, mixed with lime and potash, and boiled in water, when strained, yielded a greasy matter, in a proportion nearly equal to the strongest clay.

EXPER. XXXII.—Some of this till, boiled in water without any addition, and afterwards saturated with vitriolic acid, discovered no gypsum.

EXPER. XXXIII.—A quantity of this till, properly burnt and pulverized, when examined by the magnet, discovered iron in very great quantity.

Similar trials were made upon different tills, all of which discovered nearly the same principles, and all went to prove, that it contained iron in a much greater proportion, than any other soil.

The foregoing experiments seem to prove, that the principal constituent parts of fertile clays are, *alkaline salts*, *calcareous earth*, and *oil*, together with a very small proportion of iron. In the strongest and most retentive clays the proportion of oil is greater, and that of alkaline salt and calcareous earth less, than in such as approach nearer to the nature of loam, except in the experiments, when the clay was taken from the top of a lime-rock, in which it was found to contain less oil than any of the others, and more calcareous earth than either loam, or any of the other clays; it differs further in containing no iron.

Tills contain the same principles as other clays, with the exception of calcareous earth, of which they appear to be entirely destitute, in place of which, they contain a very great proportion of iron, which seems to be the principal cause of their barrenness, and, according as they contain more or less of it, they are more or less sterile.

ANALYSIS OF MOSS.

EXPER. XXXIV.—Half a pound of moss, distilled in a retort, yielded nearly two ounces of an acid liquor, which effervesced strongly with alkaline salts, and turned the syrup of violets, red; towards the end of the process, a good deal of oil was obtained.

EXPER. XXXV.—The same quantity of the same moss, being boiled for a considerable time in water, yielded an acid liquor possessing the same properties as the former.

EXPER. XXXVI.—The same moss burnt, and the ashes lixiviated with boiling water, afforded about a twenty-eighth part of its weight of fixed alkali; the remainder appeared to be vegetable earth.

EXPER. XXXVII.—The same quantity, boiled with a ley made of alkaline salts and quick lime, and the liquor saturated with vitriolic acid, yielded an oily matter in considerable quantity.

EXPER. XXXVIII.—The same quantity, boiled in water, and the liquor saturated with vitriolic acid, discovered no gypsum.

EXPER. XXXIX.—A quantity burnt, and examined with the magnet, discovered no iron.

EXPER. XL.—Half a pound of moss, in a more decayed state than that made use of in the last experiments, yielded, upon distillation, nearly one ounce and a half of an acid liquor, which effervesced with alkalies, and turned syrup of violets, red.

EXPER. XLI.—A quantity of moss, boiled in water, likewise afforded an acid liquor.

EXPER. XLII.—The same moss burnt and the ashes lixiviated, yielded nearly a twenty-fourth part of their weight of fixed alkali.

EXPER. XLIII.—The same quantity boiled in a ley, made of alkaline salts and quick lime, and the liquor saturated with vitriolic acid, yielded an oily mass in a greater proportion, than the moss made use of in the first experiments.

EXPER. XLIV.—A quantity of this moss was boiled, and the liquor treated with acids as in Exper. XXXVIII. discovered a very small quantity of gypsum.

EXPER. XLV.—The trial by the magnet discovered no iron either in this or the moss that was the subject of the first experiments.

Many more trials were made upon moss in all the different stages of decay, the whole of which went to prove, that the predominant principle in the whole is an acid; and, according as the moss is more or less decayed, the prevalence of this principle is more or less observable. In the experiments upon moss not much decayed, the quantity of acid was greater, and that of the oil and alkali less, than in any of the other trials; on the contrary, where it was most decayed, it was found to contain the least acid and the greatest proportion of oil and alkaline salts. A knowledge of these circumstances is of considerable importance in agriculture, for by observing the progress, that moss has made towards decay, a tolerable idea can be formed of the trouble and expense, that will be necessary either to bring it into cultivation, or render it useful as a manure.

From the above experiments it would appear, that the constituent parts of moss are, 1. an acid; 2. an alkali; 3. oil; 4. vegetable earth; 5. iron. The iron was met with in one instance only, and in that, the quantity of acid was greater than in any of the other trials; the nature of the acid was also different, being evidently vitriolic, a thing seldom met with, unless in cases where the moss contains iron, which is certainly the worst of all its principles, and the most difficult to correct.

Upon comparing the constituent parts of moss with those of the best soils, they are found nearly the same, with the exception of the acid, but in different proportions. The alkaline principle in some kinds of moss is scarcely equal to what is met with, in good loam or clay, while the oil and vegetable earth are much greater; a great proportion of other soils consists of sand, gravel, earth, &c.; but the earthy part of moss consists entirely of a mould formed by the earthy part of decayed vegetables, together with the sediment of water.

EXPERIMENTS ON TURF AND MUIR-SOIL.

The analysis of turf, upon the muirish soils in this county, discovers nearly the same principles as are met with in moss. In this place the detail would have been spared, but for the notice that must necessarily be taken of the practice of paring and burning, where a statement of the component parts of turf require to be given.

ANALYSIS OF TURF AND MUIR SURFACE.

Exper. xlvi.—Half a pound of turf pared off very thin yielded, upon distillation, one ounce and six drams of a liquor possessing the properties of an acid.

Exper. xlvii.—A quantity of the same turf boiled in water yielded a liquor possessing the same qualities.

Exper. xlviii.—Half a pound of the same turf

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burnt, and the ashes lixiviated, yielded about three drams of fixed alkaline salt; the remainder consisted of vegetable earth insoluble in water.

EXPER. XLIX.—The same quantity boiled with a ley, made of lime and potash, and the liquor strained and saturated with vitriolic acid, yielded an oily mass.

EXPER. L. and LI.—No gypsum was obtained from this turf, nor did the trial by the magnet discover any iron. Many other trials were made with different kinds of turf taken principally from muirish soils, the result of which seem to establish the constituent parts of turf to be, 1. an acid; 2. an alkali; 3. oil; 4. vegetable earth in a considerable quantity. In cases where the turf is pared very thin, it is found to contain less acid and more alkaline salts and vegetable earth, than where it is deep cut, and much of the soil taken along with it.

No. II.

I. ARTICLES OF AGREEMENT BETWEEN HENRY FLETCHER, ESQ. OF SALTON, AND JAMES MEIKLE.

IT is agreed betwixt Henry Fletcher, brother to the Laird of Salton, on the one part, in the name of his said brother, and taking burden upon him for the said Laird of Salton, and James Meikle Wright, in Wester Keith, on the other part, that they shall keep and perform to one another according to the tenor of the following articles, viz.

Impr. The said James Meikle shall go to Holland with the first fleet that sails thither after the date of these presents, and there learn the perfect art of sheeling barley, both that which is called French barley, and that which is called pearl barley, and how to accommodate, order, and erect mills for that purpose, in so far as he can with his uttermost industry, and the recommendations given him.

2d. That as soon as the said James Meikle shall find himself sufficiently instructed in said art, he shall return with the first fleet or man of war, he can have safe passage in for Scotland or Newcastle; that in the mean time, if he shall be forced to wait, he shall endeavour to instruct himself in any other useful trade or manufactory.

3d. That when he returns to Scotland, he shall be obliged to communicate the arts he has learned to Salton, or to any whom he shall appoint, and shall communicate them to no other person but by Salton's permission.

4th. That Salton shall pay all the said James Meikle's expences, in going and coming, and learning said arts.

5th. That the said James Meikle shall be master of the sheeling mill if he think fit, and shall have a proportional allowance for it, in proportion to the profit it yields, or a yearly salary according as two honest men chosen for that end shall determine; but if the said James Meikle shall not think fit to employ himself in this manner, but can do better otherwise, then he shall be obliged to teach the art of sheeling French barley and pearl barley to any whom Salton appoints, he being paid for the time he employs therein; and besides, in this case, Salton shall give him a handsome reward for the pains he has been at, and the art he has taught, he then going out of Salton's service, and not profiting any more by the mill, and then the said Meikle shall renew his obligation not to make use of this art himself, nor teach it to any other.

6th. But if it shall happen that the said James Meikle shall be taken prisoner either going or coming, Salton shall be obliged to relieve him and pay all his expenses.

7th. That if it shall happen, that the said James Meikle shall die abroad in this voyage, then Salton shall be obliged to give his wife and children 100 mirks.

8th. That the said James Meikle from the time he parts from his own house to go to the ships till he return, shall be allowed every day two shillings sterling, viz. one shilling for his entertainment, and one shilling for his work, and shall give a receipt for any money he takes with him, or any letter of credit he gets, and shall account for them accordingly when he comes back.

Lastly, both parties oblige themselves to keep the foresaid articles under the penalty of 500 mirks by and attour performance; in witness whereof they have subscribed thir presents, written by the said Henry Fletcher, at Salton, this 17th day of April, 1710.

Signed, H. FLETCHER,
J. MEIKLE.

II. (Copy,) LETTER FROM ANDREW FLETCHER, ESQ. TO JAMES MEIKLE.

JAMES, Hague, 18th June, 1710.

I received yours of the 14th, and doubt not but you have got the barley before this comes to your hand; as for those big pieces of iron work you speak of, which will be necessary for setting up a mill for sheeling barley, pray have them made, and every thing else which you think necessary to buy in this country, and take care that they be ready, as soon as may be. As for the time of your sailing it is uncertain, but you must be at Rotterdam by the time the ships fall down, which I shall have timely advertisement of, and come to bring you away; I believe you may expect me about Friday or Saturday the 27th or 28th of this month, so let all be ready against then, and advize with Mr. Morison if you find difficulty in any thing.

I am,
Your assured friend,
Signed, A. FLETCHER.

P. S. If you want money for paying for the things that are to be bought or made, Mr. Morison will furnish you.

No. III.

OBSERVATIONS ON THE SEA COAST OF EAST LOTHIAN.

THE sea coast of East Lothian is of considerable extent, reaching from Dunglass to North Berwick Law on the East side, and from North Berwick Law to the westermost extremity of the county on the North. The shores throughout the whole of their extent exhibit every variety that is met with on any part of the British coast, being in some places high, bold, and rocky; in others, forming a gradual slope, and in several parts having a flat sandy beach of considerable extent.

When attentively observed they appear to have undergone considerable changes at no very distant period. The sea having gained upon the land in some parts and retreated in others.

Where the shore is high and composed of soft incoherent materials, with a bold perpendicular front, there, encroachments of the sea have chiefly taken place, while on the flat and gently sloping parts, instead of encroaching, it seems evidently to have retreated.

That the ocean should gain upon high bold shores, and retire from such as are flat or sloping, will certainly appear paradoxical to many, but the fact is certain, and the cause easily explained. Where the shore is high, the materials soft, and the water deep, every tide washes away a part of the earth from the bottom; the top is by that means gradually undermined and falls down in great masses, the tides soon carry off the earth which falls from the top, the bottom is again washed away, and more earth falls down; this continues to be the case, and the sea gradually gains upon the land, till in process of time, the face of the shore either loses its perpendicular front and crumbles down into a slope, or a bed of granite or whinstone interposes, and forms a permanent boundary to the water, as is the case in several parts of the coast.

On the flat and sloping parts of the coast, no incroachments can possibly be made, as the waves are entirely spent before they reach the shore: this is readily accounted for, it being well known that the force and pressure of fluids, is in all cases as their altitude or perpendicular height; that being the case, it is obvious that where the shore inclines gradually towards the sea, the force and pressure of the water is so much diminished by the slope, that when it reaches the extreme boundary of the shore, its effect is not as that of the whole wave, but only of the small part of it that runs farthest out, which is almost nothing; add to this, that every tide throws upon the beach considerable quantities of sand and other matters, which gradually accumulating forms a bank considerably higher than the shore originally was. The formation of such banks and the encroachment of the land upon the sea is considerably assisted, and accelerated by the growth of bent-grass upon the shores; wherever it has taken root, the land has not only risen considerably above its former level, but has at the same time encroached considerably upon the sea.

This is very visible upon many parts of the coast, particularly from Prestonpans to Aberlady, and from thence eastward to North Berwick, an extent of not less than ten or twelve miles, the whole of which, with a very few exceptions where the shore is rocky, is covered with bent-grass. This plant seems peculiarly adapted to the sea coast, thrives even under the surge, and though covered to a considerable depth with sand or earth, always grows through it.

When the wind or tide therefore throws sand or soil upon the beach, which happens almost daily, these matters are entangled and retained amongst the grass, and gradually form a bank; accordingly, wherever bent-grass makes its appearance upon any part of the coast, the shore is raised into ridges of considerable height, one within another, all running parallel to the coast; and if any of these ridges is dug to the bottom, it is found to consist almost entirely of the roots of the bent, and sand that has accumulated amongst them.

In this way the first barrier that is presented to the sea upon flat shores is accounted for, the encroachments of the land upon the sea are explained upon the same principle. The roots of the bent, like those of the common couch-grass, strike deep into the soil and spread out in every direction; they naturally creep towards the sea, and form little tufts, which being covered with sand, either blown by the wind or thrown out by the sea, send out new roots, from which fresh tufts spring, which being also covered with sand and afterwards growing through it, lay the foundation of a new bank, and a farther encroachment upon the sea. Besides the advantage thus derived from the growth of bent-grass upon the shores, a farther benefit results from its entangling and rendering the sand stationary. Upon all shores where there is much light sand, it is, when in a dry state, easily acted upon by the wind, and in numerous instances extensive tracts of valuable land, both in Scotland and England, have been lost by being covered with blown sand.

Where bent-grass or other hardy plants grow upon the shores, this cannot possibly happen, as the roots bind the bottom completely, and the tops being strong and capable of considerable resistance, the sand when once blown amongst them has its farther progress impeded.

Great advantage may be reaped by paying due attention to this circumstance, in situations where either the sea or rivers threaten encroachments upon the adjoining grounds.

It has been already observed, that a perpendicular shore, when it consists of soft incoherent materials, is the worst possible barrier that can be presented to water; it has also been noticed, that a gentle slope is the best boundary for either rivers or the sea. In situations therefore where the shore is high, and presents a bold perpendicular front, the only certain mode of defending it against the action of the water, is by reducing it to a slope, which should be greater or less according to circumstances; this slope should be covered with the sod of bents taken from such of the adjoining ground, as are not within the reach of the waves; if this is carefully done, and the work afterwards well beat down, the encroachments both of the sea and rivers would in most cases be prevented, observing only to substitute the roots of couch-grass, and such hardy acquatic plants as grow spontaneously upon the banks of rivers, in place of the bent.

To the eastward of Aberlady Bay there is an extensive tract of low flat land, which may very properly be named the Vale of Peffer, from a rivulet of that name which runs through it; this tract extends from Aberlady Bay on the west, quite to the east sea. The rivulet rises at Congleton, nearly about the middle of the vale, and takes two opposite directions, a part of it running westward to the bay above mentioned into which it empties itself, and the other part taking an east course falls into the sea over a flat beach, named from that circumstance Peffer Sands, a little way to the southward of Sea Cliff, the seat of Robert Colt, Esq. of Auldhame.

There is every reason to believe that a great part, if not the whole extent of this vale, has been covered by the sea at no very distant period; the ground is still very little above the level of the ocean, and the appearances throughout strongly support this opinion, the soil, with very little variation, being the same with that of Aberlady Bay, which is left bare for several miles at low water. Many circumstances indicate that the greatest part of this bay, which is of very considerable extent, will be recovered from the sea in the course of another century; sand banks are fast accumulating in different parts of it, the tract of the rivulet after it gets within the sea mark is fast deepening, spots of grass are springing up all along the shore, which at high water appear like so many little islands, and which are every year growing broader, and no vessel of any burden can now come near the shore, though it was formerly a port of some consequence, and accessible to vessels of considerable tonnage. It formerly made a part of the revenues of the royal burgh of Haddington, being granted to the town by charter, and of such importance was it held to be, at that time, that a road forty feet wide, reaching the whole way from Haddington to Aberlady, was given along with it; this road is known by the name of the Burgh-Gate-Loan, and very tenaciously preserved by the burgesses, who in visiting these marches, which they do every three or four years, pull down without ceremony every fence or building, that encroaches in the smallest degree upon their ancient rights.

But, tempora mutantur—that port which in former times was of such consequence, as to make a part of a royal grant, and have a road of forty feet wide for six miles through some of the best land in the county, occupying a space of between seventy and eighty Scots acres, is now of so little value, as to be rented at five shillings a year.

Throughout the whole extent of this vale, which is ten or twelve miles, the descent towards the sea is so small, especially to the westward of Congleton, that the adjoining lands are laid completely under water every heavy rain that falls, by which means their value is considerably diminished. This evil is not however without remedy; at the western extremity of the rivulet where it empties itself into Aberlady Bay, there is a corn-mill of small value, which requires a fall of ten or twelve feet, a height much exceeding the whole remaining descent throughout the course of the rivulet. Were this mill removed, the whole tract from Congleton westward, a distance of at least six miles, would be completely drained.

The profit that would accrue to the proprietors and occupiers of this tract, from the removal of the mill in question, would be very considerable; a great part of the soil is of an excellent quality, and the whole capable of very great improvement. In its present state it is of small value, the frequent inundations to which it is liable forbids the cultivation of it for grain; it is equally unsafe for pasture, as it is liable to be flooded to the depth of several feet in a night's time. The only benefit at present derived from it, is a quantity of hay of an inferior quality; even that, is liable to be either lodged and covered with mud before it is cut, or drowned by the rains afterwards.

The possibility of rendering this vale dry by the removal of this corn mill at the extremity of the rivulet, does not depend solely upon the authority of the person who writes this article, though he is well acquainted with the ground, and has frequently considered it with more than ordinary attention; he mentions it upon the authority of a very able engineer, with whose worth the county is well acquainted (Mr. Andrew Mickle) who knows the ground well, and entertains no doubt of its being rendered perfectly dry at all seasons by that means only.

It is to be hoped, that this hint will be taken up by those who have property in the vale, whose interest it would be to order a survey of the level, which would be attended with no great expense, and if the thing appears practicable, of which we entertain no doubt, to make a joint purchase both of the lease and the property of the mill, and immediately pull it down, and allow the rivulet to enjoy the full benefit of its natural level. The expense in proportion to the immediate interest of each proprietor would be a mere trifle, the benefit would be immense, so much indeed, that throughout the kingdom there is perhaps no situation, where so much can be done in the way of improvement at so small an expense.

The lands to the north of Peffer rise gradually from the vale, and afford one of the richest and most beautiful prospects in the county; the inclination towards the South is gentle, affording at once an easy drainage, and an opportunity of catching the rays of light and heat that fall upon the surface. This tract commences at Sea Cliff on the east, and terminates at Gullon Hill on the west, and may with truth be said to contain, in proportion to its extent, the greatest quantity of valuable land of any district in the county.

The westernmost point of this ridge terminates in a rocky point, which runs a considerable way out into the sea, a part of which only is bare at low water, and which seems to be the remains of a peninsula, that has at one time stretched a considerable way to the north-west, surrounded by a considerable tract of sandy links upon a clay bottom; this sand seems to have been originally brought there by the winds, has accumulated to a great depth, and though now rendered in a great measure stationary, by the grass with which it is covered, slender observation will convince any one that, it has undergone many alterations, and that its accumulation has happened at periods, some of them pretty remote from each other; successive coverings of grass have been overwhelmed with sand, and upon carefully examining those places where the surface is broken, many different stratums of grass and the roots of plants appear in the face of the bank; these appear like so many black lines, and when carefully examined are found to consist entirely of the roots of such plants as formerly grew upon the surface, and had been covered at different times by the blowing of the sand.

To the north east of Gullon there is an extensive plain known by the name of Dirlton Common, the property of William Nesbet, Esq.; this plain has likewise been covered by the sea, and is still so very little above its level, that some part of it remains without drainage.

A part of this tract is skirted by a ridge of rocks which seem to have formed a kind of bar, when the sea covered the plain, the remainder is defended by sand banks covered with bent grass, which evidently owe their origin to the growth of this plant.

This part of the shore exhibits evident marks of the sea having considerably retired from its former bed; these are very visible, not only upon such of the rocks as are now without the reach of the sea, but also upon those that are still exposed to the tides. All rocks that are washed by the sea are in general surrounded with a line of a whitish colour, which is known by the name of High Water-mark. This line is owing partly to the incrustation formed by the earthy part of the salt water adhering to the rocks where the tide reaches its utmost height, and partly to a number of young shell-fish, such as limpets, &c. the spawn of which have been deposited there.

Upon the rocks on this part of the coast several lines of this kind can be distinctly traced, all of them considerably above high water mark, which prove in the most incontestible manner the sinking of the sea; and as a farther confirmation of this, it is observed, that the uppermost of these lines, from being exposed to the air and weather, is nearly obliterated, while those that are nearer the water are more distinctly marked, and the shells that adhere to them in higher preservation.

The places where the sea has advanced upon the shore are very easily distinguished to the eastward of Dunbar; it has made considerable inroads in many places, and has only been prevented from penetrating farther by meeting with rocks; this has also happened opposite to Sea Cliff, and to the north of the town of North Berwick, as also opposite a part of the property of Lord Portmore, in the parish of Aberlady, and from the village of Prestonpans westward to Ravenshaughburn, the extreme boundary of the county.

Immediately opposite North Berwick, the shore has been so much wasted, that the old church, which formerly stood a considerable way in land, is now insulated at high water, and as the materials which compose the soil to the south of it are soft and incoherent, there is little doubt but the rock on which it stands, will soon be entirely detached from the land.

The ancient fortress of Tantallen is in the same situation; originally it appears to have been at a considerable distance from the sea; it is now, however, nearly insulated, and, in all probability, will very soon be so; indeed the perpendicular shore on each side of this ancient fortress, consisting, for the most part, of soft earth, and upwards of two hundred feet in height, leads the mind back to the time, when this shore ended in a gentle slope, and extended greatly beyond the Bass, that rock so justly celebrated by our elegant poet Home, in his tragedy of Douglas. Upon a subject like the present, conjecture grows bold, and, in many cases, oversteps even the bounds of probability; perhaps a part of the observations now offered are of that description. The author of them has frequently surveyed the parts he now describes, and has reflected a good deal upon the probable causes that have operated to produce the changes they have undergone; he offers simply his own opinion, founded upon the observations he has made. The communication being anonymous, his pride runs no risk whatever of being hurt, if he is wrong, but his gratification will be considerable, if any person of sufficient knowledge furnishes the public with better information.

From present appearances it is very certain, that the land has formerly extended much farther to the east than it now does, especially the ridge commencing at Gullon Hill on the west, and terminating at North Berwick Law on the east, which seems to have stretched considerably farther in both directions.

When the indentation of the sea coast of any county is carefully considered, it is observed, that the most considerable inlets are to be met with, where rivers or rivulets empty themselves into the sea; these are greater or less according to the nature and importance of the stream, by which they are formed. This is the case in that part of the coast we are now attempting

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to describe; that extensive opening, now known by the name of Dunbar Bay, the extreme points of which are, St. Abb's Head on the south, and North Berwick Law on the north, together with the mouth of the Frith, seems to have consisted formerly of four openings; the first and largest of which was the entry to the Frith, the second was what is now the track of Peffer, over which the sea undoubtedly flowed throughout its whole course, the third consisted of the opening through which the river Tyne falls into the sea, and the fourth the outlet of a small stream named Bul or Balhaven Water; into each of which the sea has flowed much further than it does at present, as will be afterwards explained. Between each of these small bays or inlets, there seems to have been a peninsula of some breadth stretching considerably to the eastward; the first and largest of these was formed by the high land between North Berwick Law and Peffer Sands, the second reached from Peffer Sands southward, to what is now known by the name of Tynemouth, and the third from Tynemouth to the entry of Bulwater; the first peninsula seems to have stretched from North Berwick eastward, in the direction of the Bass and the isle of May, beyond the latter of which, if an opinion may be formed from the appearance of the coast, it terminated at some distance; the second, comprehending the space between Peffer Sands and Tynemouth, as far as can be judged by the soundings, did not run near so far to the eastward as the former; the third seems to have terminated to the eastward of Dunbar.

The soil and substratum of all these peninsulas seem to have consisted of a soft friable earth of great depth, easily acted upon and washed away by the sea.

Those, who are well acquinted with that part of the coast, and have seen it, when the sea has been much swelled by a strong gale from the east, will be able to form a pretty just idea of such a sea upon a shore consisting chiefly of loose soil. The consequence has been what might naturally be expected: the whole of these peninsulas, which certainly were of considerable extent, are now washed away, and a part of the coast, which formerly was deeply indented, and very unequal, is now so much altered, as to come under the description of a regular figure; and the ocean, though it has encroached, and is still encroaching upon certain parts, has retreated, or rather been excluded from others of very considerable extent.

If it is allowed, that the peninsulas we have mentioned, once existed, and there can be very little doubt but they did, the remaining phenomena are easily accounted for: as a heavy swell from any point between the north and south-east quarters would bear either in a straight line or a slanting direction upon all of them. When the surface was once broken therefore, and a perpendicular front was presented to the water, every storm, indeed every tide, would wash away a part of the soil; and during the winter and spring months, when these winds prevail, and when the heaviest storms are experienced, the waste of the lands annually must have been very considerable.

The progress of the sea, in such a case, will, when attentively considered, be found to bear an exact proportion to the elevation of the land above its level. Where the land does not rise very suddenly, and the soil is uniformly of such materials as we have described, the progress of the sea is rapid; but where the subjacent country, in place of having a gentle inclination towards the sea, rises suddenly to a considerable height, in such a case, even though the soil continues the same, the progress of the sea must be slower. The reasons for this are obvious; upon a low shore consisting of loose soil of a certain description, when the waves have washed off the face of it, and carried the soil off with the tide, the injury is at once visible, and the returning tide, by producing similar effects, marks with a degree of certainty the progress of the mischief.

This holds good, however, only where the coast is flat, or rises slowly from the sea; but in situations where the land rises suddenly, the matter is very different. In the former case, the land being low and within the reach of the tide, the whole is washed away at once; in the latter, the process is more complicated, and requires a greater length of time.

When either rivers or the sea operate upon lands, raised in any degree above their own level, the encroachments they make upon such lands, proceed by slow degrees, and are owing to the operation of the waters upon the undermost part of the banks, which when washed away to a certain degree, occasions the fall of the uppermost. Where the soil is any way tenacious, the undermining will be very considerable, before the top part falls down; and, if the bank is high, the mass that falls will be so great as to form a slope, which in some instances forms an effectual check to the farther encroachments of the sea, and in all cases requires some time, before such a quantity of earth can be sufficiently washed away to allow the sea to act again upon the bottom of the bank; owing to that cause, the progress of the sea becomes slower in proportion as the face of the shore grows higher; this is the case in that part, which forms the largest peninsula, and which is the one of the three already noticed, upon which the sea still continues to encroach. Immediately to the eastward of the farm-house of Auldhame, the perpendicular height of the shore is at present thirty feet, and is composed entirely of soil with a mixture of gravel from top to bottom. The highest part is greatly above the reach of the tides, or even of the waves during easterly storms; and evil is occasioned solely by the water undermining, and washing away the soil at the bottom. The top being thus left without support falls down.

It has already been hinted, that the sea formerly flowed much higher into the country, through these inlets, than it now does; we shall now attempt to explain the cause of the sea being thus excluded from ground, which it formerly occupied. It may naturally be supposed, that, when the point of these peninsulas first began to give way, the soil washed from these, would be carried by storms and the ordinary tides into the inlets on each side, and there deposited. That this has actually been the case, there is very little reason to doubt. The earth, washed away from the largest point of land, has taken two different directions; a great part has been carried into the track of Peffer, and deposited there, and has with the assistance of what has been washed from the point between Peffer and Tynemouth, raised that tract, which was formerly under the sea, now above its level. This is accounted for in a very natural and easy manner, for allowing the sea in former times to have covered the whole of the vale, of which there seems to be pretty strong proofs; the tide would enter it both from the bay of Aberlady and the German Ocean, at one and the same time, and meet at, or near, the middle of the vale. The earth, or other matters brought by the tide being deposited, these would in process of time form an isthmus, and prevent the tides from the east and west from meeting; that isthmus once formed, the accumulation of soil, from the deposit of the water, would be very rapid, every tide bringing a considerable quantity along with it.

To the eastward of Congleton the rise of the land, above the level of the ocean, has not only been more rapid, but also more considerable, than to the westward, owing no doubt to the heavy swell from the German Ocean bringing in with it, such a quantity of earth and sand from the points of land to the eastward, while to the westward of Congleton the accumulation must have beeu much slower, as no wind but one from the north west, would bring a high sea into it, and even that from its short run, and the little swell it would occasion, would not be expected to bring any considerable quantity of earth or sand along with it.

When we come to speak more particularly of the changes that have taken place on the north coast of the county, notice will be taken of the sources from whence the earth and mud which have filled up the westernmost part of the vale of Peffer have been derived, in the mean time it is necessary to resume the consideration of the east part of the coast; we have said that a part of the earth washed away from the largest peninsula, was carried into the tract of Peffer and deposited there, the remaining part was carried to the northward, and assisted in forming the links and benty ground to the north-east of the town of North Berwick; of late years, the soil washed off to the eastward of Auldhame seems chiefly to have been let fall to the eastward of Scongol, where it has formed a tract of considerable extent, perhaps from fifty to one hundred acres, lately covered with bent-grass, and of little or no value, but now, by the industry and enterprise of the present tenant, Mr. Brodie, it is brought under the plough, and produces valuable crops of grain and turnips.

The sea has been excluded from a part of the Vale of Tyne in the same manner, a part of the earth washed away from the shore to the eastward of Tyningham, and divided into islands, is now joined to the main land, whilst a very great proportion of the easternmost extremity of these islands is now washed away and covered by the sea. From Tynemouth to Dunbar the whole of that tract of flat land, reaching from the Banks of the Tyne as far as Broxmouth, has evidently been under the sea, but different from the parts already described, it seems to have owed its elevation much more to the immense quantities of soil and gravel brought from the higher grounds, than to what has been brought in and deposited by the tides, except very near the coast, where the whole of the soil and substratum evidently consists of the earth and other matters washed away from the point of land that formerly projected eastward from Dunbar, and which is now so far wasted that the sea washes the walls of the houses, and to the south-east is still gaining upon the land. An attentive observer, placed upon the highest land in the neighbourhood of Dunbar, can with little trouble trace the tract which the sea formerly made round it; and the descent from that place towards Belhaven bears traces of the retreat of the sea, similar to what are mentioned of Gullon Hill.

From Broxmouth to the southernmost extremity of the county, the same appearances are met with, the sea having regularly washed away all the projecting points where the materials were soft and capable of being acted upon by the water, and as regularly filled up the inlets, from whence the small streams empty themselves; indeed the only projecting points which now remain upon the coast, are in places where rocks have interposed themselves between the sea and the land, which by preventing the farther inroads of the water, renders the shore stationary. St. Abb's Head, the southernmost point of Dunbar Bay, is the most striking of these, and if we may judge from its elevation, is the remains of a point of land of very considerable extent, which formerly stretched a great way into the German Ocean; and there can be little doubt, that the tracts of sand covered with bent, both to the eastward of Sketraw and to the southward of the promontory above-mentioned, have owed their origin entirely to the sand and soil washed away from it by the tides.

That very great changes have been produced in that way, cannot be doubted, but in place of considering the wasting of the land in the places we have noticed as a misfortune, it certainly is an advantage, as several parts of the coast that formerly were disunited are now joined; and in exchange for these projecting points, which certainly were of small value, we now possess the flat plains to be met with, in the mouths of all the inlets into which the sea formerly flowed, together with the links of Skitraw, Westbarns, Scugal, North Berwick, &c. &c.

Thus much of the east coast; we come now to speak of the north part which forms the southern boundary of the Frith; and taking a cursory survey of this part, we observed the places where the greatest encroachments of the sea have been made. The first of these is opposite to North Berwick. From the rocks immediately to the north of the town, a point of land appears to have projected a considerable way into the Frith, the whole of which is now washed away, and the soil and sand of which it formerly consisted being carried by the strong easterly gales to the westward, has assisted in forming the extensive beach of links between that and Dirleton; immediately to the west of which another point of land has projected northward into the Frith, from the extremity of Gullon Hill, which has also been washed away, and the sand and soil deposited in the bay of Aberlady; nearly the whole remaining part of the coast to the westward of Gullon Point being beyond the reach of easterly winds, the changes that have happened there are to be accounted for otherwise.

From Morison's Haven to the eastward of Prestonpans the shore is high, with a perpendicular front, and the materials a friable mold; and if we are to reason from the height of the land to the westward of Ravenshaugh Toll-bar, we would naturally suppose, that this bold perpendicular front once jutted a considerable way into the sea, and terminated in a gentle slope; that this has really been the case there is every reason to believe, as also that another point, a very short distance to the west, has also extended a considerable way northward; between these two points the rivulet termed Ravenshaugh Burn empties itself into the sea, which unquestionably formed the first inlet on that part of the coast. The soil of both these peninsulas or points is now washed away, and a small bay left bare at low water now occupies their place, the extreme points consisting of rocks, and the circumference defended by a bulwark of masonry, erected at considerable expense, for defending the great post-road. A small part of the soil of these points has been carried up the channel of Ravenshaugh Burn, but by far the greatest proportion has been carried by westerly winds, and the tides, into a place which formerly formed a sort of bay or creek on the west side of the village of Prestonpans, which is now completely filled up, and the soil of which consists entirely of the sand and other matters brought there in that way.

Immediately opposite to Prestonpans the land extended very considerably to the north; and though the sea now washes the walls of the houses, there is a person now alive who remembers to have carried clubs for parties of gentlemen who took the diversion of golfing there. Perhaps few instances are to be met with where such a sudden and considerable dilapidation of the soil has happened. Upon examining what remains of the shore, however, our wonder will cease, as the soil is, without a single exception, of the lightest and most incoherent nature, and such as when once broken, and acted upon by the water, will be washed off in great quantities every tide.

The waste upon this part of the shore has arisen from the wind and tide setting in from the west and north west, and the earth and sand washed away from thence has been drawn to the eastward, and laid upon that part of the shore between Prestonpans and Cockenzie, and from that eastward to Port Seton. It is pretty certain both of these places have been insulated, and that the land has projected a considerable way from each of them into the sea, as may be seen from the appearance of the rocks with which they are skirted; and the soil to the southward, which consists entirely of sand and shells which have been driven there by the tides, and filled up the passage through which the sea formerly flowed between that, and the superior grounds to the north of Seten and the village of Tranent, while the ruins of the land, which formerly projected from Cockenzie into the Frith, have contributed to form that tract of sand and benty links extending from Port Seton to Bogle Hill. In this last part of the coast, the ancient boundary of the ocean is very visible, forming a distinct line, which separates the fine rich lands of Seton and Long Neddry, from the benty tract that lies between them and the sea. The rich land is raised considerably above the links, and seems at one time to have presented a perpendicular surface of considerable height to the water, which by mouldering away has gradually become a slope, and the sand washed from the point to the northward of Cockenzie, aided by the growth of the bent-grass, has gradually excluded the sea, and formed the links in question. Opposite Bogle Hill the land has also projected a great way into the sea, and being washed away in the same manner has formed the links of Gosford, and that benty ground to the westward of Graigielaw, opposite to which, the land has also in former times projected considerably, and the sand and soil of which being carried to the eastward, have, in conjunction with what has been washed from Gullon Point, contributed to raise the westermost part of the Vale of Peffer so much above the level of the sea, and to form that extensive sandy beach which forms the Bay of Aberlady, from which in all likelihood the sea will also soon be excluded.

It is to be noticed as a general rule, in speaking of the alterations which those parts of the coast now described have undergone, that from that point ending abruptly to the eastward of Sea Cliff to the extreme southern boundary of the county, whatever has been washed off from the projecting points has been by the east, north, and south-east winds, divided into nearly equal proportions, and thrown into the inlets, while again from North Berwick westward to Gullon Point, the wreck of the projecting points of land has been by the easterly swell regularly carried to the west, and deposited in the small bays, where it is now met with, under the appearance of benty links.

Gullon Point however being the northernmost land in the Frith on the north coast of the county, the effects of easterly gales could not be felt to the westward of it, consequently the changes produced from thence westward to Ravenshaugh Burn remain to be differently accounted for.

From Cramond Island the tides make a circular sweep along the coast to the eastward, and act with very

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considerable effect upon the whole of the shore, from thence eastward to Bogle Hill, where they again make a sweep to the northward round Graigielaw; the force of this sweep of the tide is now terminated and exhausted at the back of the ancient seat of Luffness, the property of the Hon. Colonel Hope. In the course of this sweep, every projecting point of land that did not offer an irresistible barrier to the encroachment of the water, has been washed away, and the remains of it regularly laid to the eastward; witness the depredations to the northward of Leith, where very expensive barriers are now erecting, which from their construction are very unlikely to become effectual, the earth and sand washed from which, has of late raised the sand so much as materially to affect the navigation of that port, and which, unless some effectual remedy is opposed, will, from the nature of the shore and the incoherent materials of which it is composed, render it inaccessible to any thing but small craft, in the course of another century.

To the eastward of Leith the same thing has happened; every projecting point of land has been washed away, and the little bays or creeks with which the coast was formerly indented are now filled up. The remains of these projecting points are now discovered only by the rocks which have interposed to prevent the farther encroachments of the sea, which are generally of some height, and have lands of a good or tolerable soil running backwards from them, while the former inlets present either a sandy beach left bare to a considerable extent at low water, or link grounds covered with bent-grass or other herbage; hence the projecting points of rocks at Leith, Porto Belloe, Morison's Haven, Ravenshaugh, Prestonpans, Port Seton, Bogle Hill, Graigielaw, and North Berwick, on the north, and the different projections from thence to St. Abb's Head on the south, the intermediate space between each of which is composed, either of a sandy beach of considerable extent, of link grounds, and sometimes a part of both.

In mentioning the advantages of bent-grass in preventing the blowing of the sand, as well as raising the soil above the level of the sea, it is necessary to observe, that where the waste of the land in the neighbourhood has been very considerable, and much sand has been thrown upon that part of the coast, there benty hills are frequently raised to a very considerable height, and in the end present such a high bold front to the water, that they are undermined and fall down in the same manner as the soft shores composed entirely of common soil do; but this disease very speedily effects its own cure, as they are composed entirely of sand, none of which is soluble or capable of floating away with the water; so that whatever falls down remains at the bottom and forms a slope, which not only prevents the farther undermining of the bottom, but in fact lays the foundation of a fresh encroachment upon the sea, as the sods of bent which fall down from the top taking root, spring up, and by spreading farther out into the ancient bed of the ocean, form new banks; accordingly we observe that the greatest part of benty links consist of ridges running nearly parallel to the shore, and to each other.

No. IV.

THIRLAGE.

In former times, thirlage was one of the greatest obstacles to the improvement of agriculture; nothing is said of that in the body of this work, because the evil cannot be said now to exist; it may however be amusing to some readers to see the very full and accurate account of this once heavy burden, which is given in the original survey of East Lothian. The writer was peculiarly qualified for giving the account, as he had often been led professionally to consider the subject.

" In former times" he says, " corn was reduced into meal, in Scotland, as in ancient Rome, by a hand mill, which was called a *quern*.

" I will not venture to say, that *quern* is derived from Querinus; but if the Romans instructed our rude forefathers in the raising of corn, which I have already endeavoured to prove, it seems highly probable that they would teach us also how to manufacture that corn; and I have been positively assured, that the *quern* or hand-mill for grinding of oats into meal, was used in the remote parts of the Highlands of Scotland, long after the year 1745.

" It is certain, however, that the water machine called the mill, for the grinding of oats into meal, is of high antiquity in Scotland; and as it was introduced before the period of record, it may be fairly said, *caput inter nubila condit*. But from the ancient name of one of the duties, *knaveship*, which in the sequel shall be explained, the mill would seem to be of Saxon original.

" Rude and primitive as the machinery of the oat-mill may now seem, it must have appeared a wonderful piece of mechanism in those rude and barbarous times, when it was first brought into Scotland; and as the labour and fatigue of grinding by a hand-mill must certainly have been very great, as well as tedious, it is by no means surprising that the proprietor of a water-mill, which performed the work with so much ease and expedition, and so much more effectually, should receive a high premium from the persons who frequented his mill.

" It seems also natural, that a person who possessed a stream of water upon his estate, should be invited by his neighbours, to be at the expense of erecting a mill upon this stream; and that they, on the other hand, should *thirle*, that is, astrict and bind their lands, in all time coming, to use and frequent this mill with their corns, and to pay a certain proportion of the meal (according to the universal mode then practised of paying in kind) for the grinding of it.

" Progressively as the distress and fatigue of the hand-mill came to be forgot, and the machinery of the water-mill, and the trifling expense attending the erection of it came to be better known, the heavy duty paid at the original mills, and which the antecedent covenant of *thirle* or restriction had rendered permanent, would be more severely felt; and now that the memory of the hand-mills is totally effaced, these original thirle duties are considered a real grievance.

" Anciently, there is reason to believe, the mills were at first erected upon ecclesiastical lands, and belonged to the clergy.

" There are three different species of this servitude known and acknowledged in the law of Scotland; of these, only two belong to rural economy; in order, however, that the subject may be thoroughly understood, all the three shall be shortly explained.

The first and the lightest species of thirlage is called *the thirlage of grindable grain*, and it means that the tenants and possessors of the astricted lands (in our law the *servient tenement*) shall be obliged to resort to the mill (the *dominant tenement*) to which these lands have been astricted, with all the oats and barley they shall use for food, and there pay certain dues for the grinding.

" The 2d, and the oppressive thirlage, is called the *thirlage of growing corn.*

" By this covenant of thirlage, every ounce of corn produced upon the servient lands, let the quantity be ever so great, must be brought to the dominant mill, and there manufactured into meal; and the covenanted or accustomed duties paid.

" The only limitation that this severe thirlage admits of, is in favour of seed and of horse corn.

" Sometimes a special covenant is made, by which the possessors of the servient lands pay what is called *dry multure*; that is, they pay a quantity of corn to purchase the freedom of going to market with the remainder in the same state; and where constant immemorial usage shall have sanctioned this custom, the courts of law generally so far mitigate the severity of this species of thirlage, as to find, that the proprietor of the dominant mill can demand no more than that quantity of *dry multure*, which the immemorial usage has established.

" These decisions are grounded upon the principle of a presumed contract, of which the record or memory has been lost betwixt these parties, whereby the one agreed to pay, and the other to receive the commutation fixed by the usage.

" The 3d, and last species of thirlage, is called the *thirlage of invecta et illata*, and belongs properly to *urban* tenements; the meaning of it is, that corn, wherever produced, if brought for consumption within the boundaries of the dominant mill, must be carried to the mill and manufactured there, and pay the accustomed duties.

" This species of thirlage exists in most of the boroughs in Scotland; and the mill generally belongs to the incorporation, where the borough holds directly of the crown, or what we call royal boroughs. But where a borough holds of a subject superior (the lord of the manor), the mill generally belongs to the superior, and the accustomed duties are paid to him, or to his tenant in the mill,

" It is to be observed, that in all these thirlages, it is the land of the servient tenement that is bound; and although it should pass by purchase through twenty different hands, every purchaser, and all his people upon these lands, are equally bound to frequent the dominant mill.

" There are three different species of duties paid at the dominant mill, viz. 1st, the *multure* (*multura*, grinding); 2dly, the *bannock* (the loaf); and, 3dly, the *knaveship*.

" The first of these duties belongs to the heritor and proprietor of the mill; and seems evidently to have been the fine or *premium* originally settled, as the inducement for his being at the expense of erecting the mill, and for supporting the machinery of it in future.

" The *bannock* is the duty paid to the miller, and the *knaveship* is the duty paid to the under-servants in the mill.

" The quantity of meal paid under the name of *multure*, varies considerably in different counties, and even at different mills. I have had an opportunity of knowing it as high as the eleventh boll, and sometimes as low as the 22d boll; and in one particular case, so low as the 32d, but it may be taken, upon an average, nearly at the 17th boll.

"The other duties are also various; but they may be taken jointly as equal to the half, or from that to three-fourths of the multure.

"Independent altogether of these several duties, the possessors of the servient tenement are bound to perform certain personal services to the mill and its appendages. For example, when the dam dyke, or the rampart that directs the stream of water from the river to the mill wants repair, or when the aqueducts to and from the mill require to be scoured, the people of the servient tenement must turn out and perform these works. When the roof of the house in which the mill stands decays, they must find thatch for making that repair, and they must put it on. When grindstones are wanted, or an axle, or any other part of the machinery that requires a heavy carriage, they must go with their horses and carriages to the nearest place (whatever may be the distance) to bring these articles to the mill.

"The thirlage of *growing corns* is unquestionably a heavy grievance, as it must operate in one of two ways, either of which seem impolitic, and, with submission, unjust.

"If it shall operate as a bar to the improvement of agriculture, and the extent of the tax paid to the dominant tenement may produce this effect, it is evidently impolitic.

"If, on the other hand, the lands of the servient tenement shall be improved and cultivated, it seems unjust that the proprietor of the dominant tenement should have a power to impose so heavy a tax upon the industry of the cultivators of the servient tenement, especially as he gives no equivalent for this tax.

" This species of thirlage never was known in this county; or at least, if it was, it has been long since forgot. There is another circumstance peculiarly fortunate, which has put it in the power of most of the landed proprietors of the county, without difficulty, to emancipate their tenants from the thirlage even of *grindable grain*, viz. that the landlord, almost universally, is proprietor, both of the dominant and of the servient tenement; and as he astricted his tenants to his own mill, by a covenant in the lease, progressively as the leases of the mills have expired, the landlords in general have emancipated their tenants from every species of thirlage, at a conversion of twenty shillings per plough, which is paid by the tenant; and he and his servants are left at perfect freedom to resort to any mill where they can get their work best done, and at the lowest rate.

" The case, however, is widely different in many parts of the North of Scotland; and I know, from the cause already mentioned, that there are many estates, or *servient tenements*, belonging to one proprietor, which are astricted to mills, or the *dominant tenements*, belonging to another proprietor, and not a few of these thirlages are the severe one of *growing corns*.

" It seems unnecessary, for the present purpose, to inquire whether these mills were originally erected by the clergy, and, since the reformation in religion, have now passed into the hands of laymen; or whether, perhaps, if mills are truly of Saxon origin, they were generally, and at once introduced into this country when under the Saxons, who certainly were a more enlightened people, than the Scotish and Pictish inhabitants of the North, whose ignorance of course may

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have led them more generally to subject themselves in the servitude of thirlage, to invite their clergy, or a few of the more opulent among them, to undertake the arduous task of erecting mills.

" From the near analogy betwixt tithes and thirlage, it has already appeared to me a subject of just surprise, that the parliament of Scotland, which, in the course of the last century, first authorised the valuing of tithes for the purpose of establishing a *modus* of payment, and afterwards compelled the lay titulars (proprietors) to sell their tithes at nine, and in some cases at six years purchase to the proprietors of the lands, did not introduce a fixed *modus* for thirlage, which certainly operates like tithes, as a tax upon industry, to bar, or at least to retard agricultural improvement."

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Woad.

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